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SATURDAY JULY 26 1952

TABLE OF CONTENTS

Physiopathology of Glucose Excretion by the Human Kidney P. GOVAERTS, M.D. 175
Control of Gastric Acidity A. H. DOUTHWAITE, M.D., F.R.C.P., and A. BATTY SHAW, D.M., M.R.C.P. 180
Investigation of the Aged Sick in Their Homes A. N. EXTON-SMITH, M.D., M.R.C.P. 182
Surgery in Old Age R. A. C. OWEN, F.R.C.S., and A. FURBER MURPHY, F.R.C.S. 186
Psittacosis in a Family B. K. ELLENBOGEN, M.D., M.R.C.P., and C. M. MILLER, M.D., M.R.C.P. 189
Symptomless Carriers in Home Contacts in Sonne Dysentery J. B. M. DAVIES, M.D., D.P.H. 191
Outbreak of Trypanosomiasis R. G. DAVIES, M.D., D.P.H. 192
Diagnosis of Human Trypanosomiasis G. F. T. SAUNDERS, M.D. 193

MEDICAL MEMORANDA

Two Unusual Cases of Intraperitoneal Foreign Bodies. D. H. JENKINS, M.B., F.R.C.S. 195
Subacute Inversion of the Uterus Treated with Aveling's Repositor. D. C. GALLOWAY, M.B., M.R.C.O.G. 196

REFRESHER COURSE

Peptic Ulcer. C. F. W. ILLINGWORTH, C.B.E., M.D., Ch.M., F.R.C.S.Ed. 206

GENERAL ARTICLES AND NEWS

A Scheme for the Care of the Aged and Chronic Sick. THOMAS MCKEOWN, M.D., Ph.D., D.Phil., and C. R. LOWE, M.D., Ph.D., D.P.H. 207
N.A.P.T. CONFERENCE 210
RECENT ADVANCES IN MEDICAL SCIENCE 211
NOVA ET VETERA 212
A THREE-DIMENSIONAL SURGICAL FILM ..225
REPORTS OF SOCIETIES 225
A Cough Protector. PETER CAMPBELL, M.B. 226
MEDICAL NOTES IN PARLIAMENT 237
UNIVERSITIES AND COLLEGES 238
MEDICAL NEWS 241
QUESTIONS AND COMMENTS 243

B.M.A. SECTIONS

Summary of Proceedings

Medicine 213
Surgery 214
Social Medicine and Occupational Health 215
Oto-rhino-laryngology 216
Psychiatry 217
Ophthalmology 218
Radiology 220
Tropical Medicine 221
Obstetrics and Gynaecology 222

Vital Statistics 240

LEADING ARTICLES

The Training of Research Workers 200
Cancer in London 201
Future of the Public Health Service 203

ANNOTATIONS

Gastric Acidity 204
Hallux Valgus 204
Better Health 205

REVIEWS

Health Across Frontiers 198
The Heart in Pregnancy 198
Evolution of Evolution 198
Blood Clotting 199
Religion and Psychotherapy 199
Nervous System Maturation 199

OBITUARY

Sir Hugh Cairns, K.B.E., D.M., F.R.C.S. ..233
R. W. Craig, O.B.E., M.D., F.R.C.P.Ed. ..235
J. O. D. Wade, O.B.E., M.S., F.R.C.S. 237

CORRESPONDENCE

A Register for Postgraduate Qualifications. R PAKENHAM-WALSH, D.M. ..227
Isolation and Quarantine. G. W. RONALDSON, M.D. 227
Malaria in Britain. P. H. ROUND, M.B. 227

SUPPLEMENT

Full Contents on First Page of Supplement

G.M.S. Committee 77
The Dain Fund 79
Superannuation 79
Arbitration on Durham Dispute 80

CORRESPONDENCE—*cont.*

Hormones and Personality. CLIFFORD ALLEN, M.D., and L. R. BROSTER, F.R.C.S. 227
Orchidectomy for Intersex. MICHAEL C. OLDFIELD, F.R.C.S. 228
Burns and Antihistamines. H. HERXHEIMER, L.R.C.P.Ed. 228
Wound Healing After Large Blood Transfusions. G. R. ROYSTON, M.D. 228
Massive Haemorrhage from the Acute Gastric Ulcer. M. HERSHMAN, F.R.C.S., and S. Z. KALINOWSKI, M.D. 228
Cholesterol Tolerance and Coronary Thrombosis. IAN WANG, M.B. 229
"Cytology and Cell Physiology." G. H. BOURNE, D.Phil. 229
Hydrofluoric Acid Burns. G. R. C. PEATFIELD, F.R.C.S. 229
Pain in Childbirth. D. J. ADAMS CLARK, M.R.C.S. 229
Haemophilus Bronchitis. J. MULDER, M.D. 230
Growth of the Foetal Head. KEITH VARTAN, F.R.C.S.; I. MACDONALD, M.B. 230
Judging Tuberculin Patch Tests. H. G. CALWELL, M.D. 230
Treatment of Hypoprothrombinaemic Haemorrhages. J. P. SOULIER, M.D., and others 231
Inhibiting Hyaluronidase in Rheumatoid Arthritis. P. BACSICH, M.D. 231
Syringe Service in Practice. B. R. S. MAINWARING, B.M. 231
Intra-ocular Acrylic Lenses. J. M. ANDERSON, M.D. 232
Dupuytren's Contracture. J. A. ROSS, F.R.C.S.Ed. 232
Normal Position of the Uterus. D. G. WILSON CLYNE, F.R.C.S.Ed. 232
Urine Wanted. C. RIMINGTON, D.SC. 232
Points from Letters 232

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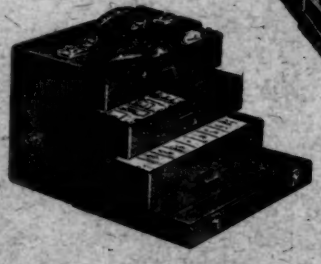

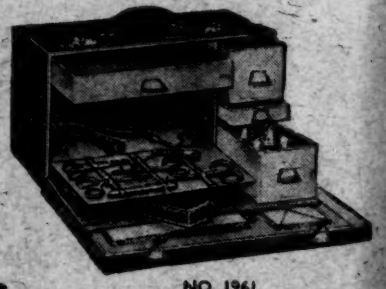

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 26 1952

PHYSIOPATHOLOGY OF GLUCOSE EXCRETION BY THE HUMAN KIDNEY*

BY

P. GOVAERTS, M.D.

Professor of Medicine, University of Brussels

Renal physiology, after being based on hypotheses and inferences for many years, was given a factual basis when Richards (1929), Wearn, Walker, and others succeeded in obtaining samples of glomerular and tubular fluid from amphibia for chemical analysis. These authors proved by direct observation how glucose is excreted by the amphibian kidney. (1) Glucose enters the nephron exclusively by glomerular filtration; this is why it is not excreted by aglomerular kidneys. (2) The concentration of glucose in the glomerular filtrate is the same as in the plasma. (3) Since the capsular fluid contains glucose when the bladder urine is free of that substance, glucose must be reabsorbed by the tubules. (4) Phlorizin, when injected in high doses, is capable of completely blocking the reabsorption of glucose. These basic facts being duly proved by direct observation in amphibia, it is essential to know whether the same facts are true for the mammalian kidney.

Starling and Verney (1925) suppressed the function of the tubules in a heart–lung–kidney preparation by poisoning them with cyanide. The urine was similar to an ultrafiltrate of the plasma, and its glucose content was the same as that of the plasma. This suggests that in mammals, as in amphibians, glucose is present in the glomerular filtrate in the same concentration as in the plasma.

Theory of Clearance Tests

Rehberg (1926) showed that it was possible to measure glomerular filtration by the renal excretion of substances having definite characteristics: (1) they must enter the nephron only by way of glomerular filtration; (2) their concentration must be identical in plasma and in glomerular filtrate; and (3) they must not be reabsorbed by the tubules. When these conditions are present the volume of glomerular filtrate may be easily computed.

Let us call D the amount of that substance excreted in 1 minute, b the amount of that substance in 1 ml. of plasma; b is also the concentration of that substance in 1 ml. of glomerular filtrate. Therefore, to deliver D in the bladder urine $\frac{D}{b}$ ml. must have been ultrafiltered. The general formula is: Volume of glomerular filtration $=\frac{UV}{B}$, where V is urine volume per minute and U and B are concentrations of the same substance in urine and blood.

Rehberg considered that creatinine was a suitable substance to measure the glomerular filtration in man and dog. This opinion is still true so far as the dog is concerned (Fig. 1); in man, the measure of glomerular filtration by exogenous creatinine is now generally regarded as inaccurate, and therefore inulin, mannitol, or sodium thiosulphate is commonly used. As in the dog it is possible to measure the glomerular filtrate by creatinine one can calculate the amount of glucose filtered per minute, assuming that the glucose concentration in the glomerular filtrate is the same as in the plasma.

$$\text{Filtered glucose} = \frac{\text{U. creat. V}}{\text{B creat.}} \times \text{glucose concentr. in 1 ml. plasma}$$

Supposing, for example, that a normal dog excretes 0.6 mg. of creatinine a minute, when 0.01 mg. of creatinine is present in 1 ml. of plasma, then we may say that the volume of glomerular filtrate is $0.6/0.01 = 60$ ml. a minute. The glucose concentration being at the same time 1 mg. per ml., the 60 ml. of ultrafiltrate must contain 60 mg. of glucose. As we find no glucose in the urine of that normal dog we must assume that the 60 mg. filtered is completely reabsorbed.

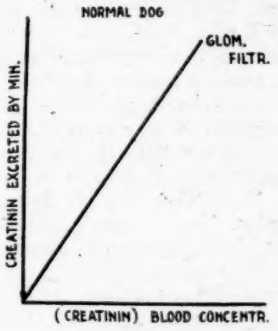

FIG. 1

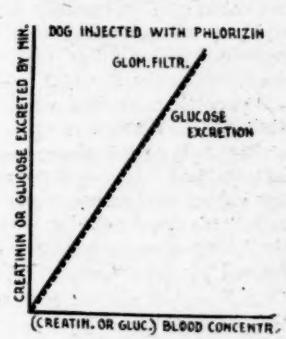

FIG. 2.

Now, if phlorizin is capable of completely blocking the reabsorption of glucose, we must, when the dog has been injected with a sufficient dose of that drug, recover in the bladder urine all the filtered glucose, which in the aforesaid conditions is 60 mg. This experiment was first made by Poulsson (1930), and its results were those predicted. It was later repeatedly verified (Fig. 2).

So we get an indirect but very consistent proof that the mechanism of glucose excretion by the dog's kidney is identical with that of the amphibian kidney: (1) glucose enters the nephron exclusively by glomerular filtration; (2) its concentration is the same in plasma and glomerular filtrate; and (3) the reabsorption of glucose can be totally suppressed by phlorizin.

*Lecture delivered at the University of London on January 31.

The law of glucose excretion in the dog under the action of phlorizin is thus perfectly defined and formulated by:

Excreted glucose = plasma glucose × glomerular filtration

Glucose Excretion by Dog when Blood Level of Glucose is High

Now we must consider how glucose is excreted in the dog, under normal circumstances, when there is no hindrance to the reabsorptive function of the tubules.

Shannon and Fisher (1938) have described the law of glucose excretion in the dog in the following way: When the blood concentration of glucose is progressively increased the urine remains free of sugar until a certain level of blood glucose is reached, when glucose just appears in the urine (Fig. 3). That critical value of the blood sugar (A) is called the threshold. When glycaemia is increased to much higher values (for instance, between 350 and 1,000 mg. per 100 ml.) the ratio glucose excreted/blood glucose is a straight line parallel to the line OC, the slope of which corresponds to the volume of glomerular filtration. For each point on the abscissa corresponding to a stated concentration of blood glucose the amount of filtered glucose is the ordinate from that point to the line OD. So long as the blood concentration is lower than A, the whole of the filtered glucose is reabsorbed, as there is no glycosuria. The distance DA corresponds to the glucose reabsorbed when the threshold is just reached: this is the maximal amount of glucose which the kidney can reabsorb per unit time. It is what H. Smith calls "maximal tubular reabsorption" or "TmG." When the blood glucose is increased to E the amount of glucose filtered is: blood glucose OE × filtration.

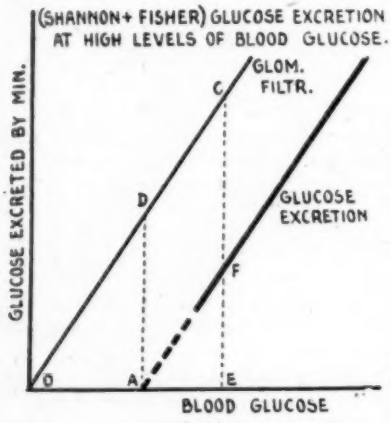

FIG. 3

In Fig. 3 it can be seen that OE × filtration = EC. From that amount the kidney reabsorbs TmG, which is equal to CF, and excretes EF, which equals AE × filtration. Therefore the law of glucose excretion which can be deduced from the observations of Shannon and Fisher at very high levels of glycaemia is:

Filtered glucose = blood glucose × filtration
Excreted glucose = filtered glucose − TmG
TmG = threshold × filtration
Excreted glucose = (blood glucose − threshold) × filtration

The law formulated by Shannon and Fisher is correct only when the blood glucose is kept very high. We were able to verify it in 1939 by studying glucose and creatinine excretion in pancreatectomized dogs (Govaerts and Muller, 1939).

It may be interesting to point out that the mechanism of glucose excretion is fundamentally similar in the phlorizinized dog and in the dog with a high glycaemia. In the phlorizinized dog the reabsorptive power of the tubules is completely blocked by the drug: the whole of the filtered glucose is excreted and the output is:

Excreted glucose = blood glucose × filtration

In the normal dog whose glycaemia has been raised to a high level it is glucose itself which blocks the reabsorption. Such a process of saturating the tubules needs a constant quantity of glucose (TmG), which is subtracted from the total amount of glucose filtered by the glomeruli of the whole kidney. As shown above, TmG = threshold × filtration

$$\therefore \text{Threshold} = \frac{\text{TmG}}{\text{Filtration}}$$

Thus the threshold may be regarded either as a portion of the concentration of glucose in the blood or as a portion of the concentration of glucose in the glomerular filtrate.

In the ultrafiltrate the threshold is the maximal amount of glucose which for a stated filtration rate is subtracted from each millilitre of glomerular filtrate in order to saturate reabsorption. In the blood the threshold is the amount of glucose which is of no account in glucose excretion, since when the blood yields to the glomerular filtrate the glucose content of 1 ml. of plasma it gets back an amount of glucose equal to the quantity called the threshold. Therefore it is equivalent to write

either

Excreted glucose = (blood glucose − threshold) × filtration

or

Excreted glucose = (glucose concentr. of ultrafiltrate − glucose reabsorbed from 1 ml. ultrafiltrate) × filtration

Measure of Glomerular Filtration in Man

If the aforesaid considerations be correct, it must be possible to measure the rate of glomerular filtration from the ratio glucose excreted/blood glucose when the blood sugar is raised to very high levels. This is what we did, by the following procedure (Govaerts *et al.*, 1948; Govaerts, 1949a):

The blood glucose is raised to a very high level (about 800 mg. per 100 ml.) by an intravenous injection of glucose. Thereafter the blood-sugar level is allowed to fall and four separate specimens of urine are taken in succession. Each of these is collected during a strictly measured period of about eight minutes. A sample of blood is taken before and after each urine collection, and so the mean concentration of blood glucose during each period of urine excretion is computed. When glucose excreted per unit time is plotted against blood glucose one gets four points which fall on a straight line.

The slope of this line corresponds to the glomerular filtration. Extrapolation of the line to its point of intersection with the abscissa yields the value of the "threshold" of Shannon and Fisher. The ordinate DA is equal to TmG of Smith.

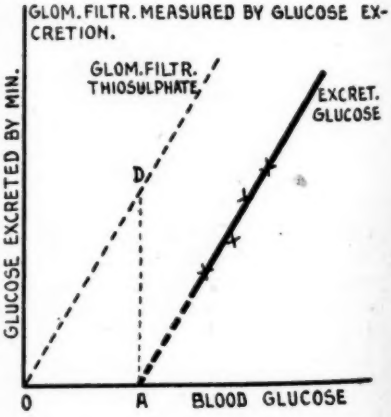

FIG. 4

We have measured by this method the filtration rate in 17 patients. The figures obtained agree fairly well with the simultaneous thiosulphate clearance. So did the figures for the value of TmG and of the threshold calculated by both methods. The mean values of our results for the group of 17 patients are:

	Filtration	Threshold	TmG
Computed from thiosulphate excretion	107·3 ml.	236 mg./100 ml.	252 mg.
Computed from glucose excretion	105·6 ,,	230 ,,	245 ,,

The measure of glomerular filtration by intravenous injection of glucose could be used in clinical work. It has the advantage that the substance injected is not foreign to the organism.

This method assumes that glomerular filtration remains identical during the successive collections of urine. This does not seem to be an objection. As a matter of fact, the filtration was very constant in our patients during the period of high blood glucose concentration : this was shown by the successive measurements by the thiosulphate method. This stability of filtration rate is the reason why the two methods (glucose and thiosulphate) gave identical results.

Glucose Excretion in Man when Blood Glucose Level is Progressively Raised

From the theoretical point of view, the procedure using glucose is of interest. It proves: (1) that in man, as in the dog or in the frog, glucose enters the nephron exclusively by glomerular filtration ; and (2) that its concentration is the same in the ultrafiltrate as in the plasma.

Thus, by using objective measurements and experimental data, we have got an insight into the mechanism of glucose

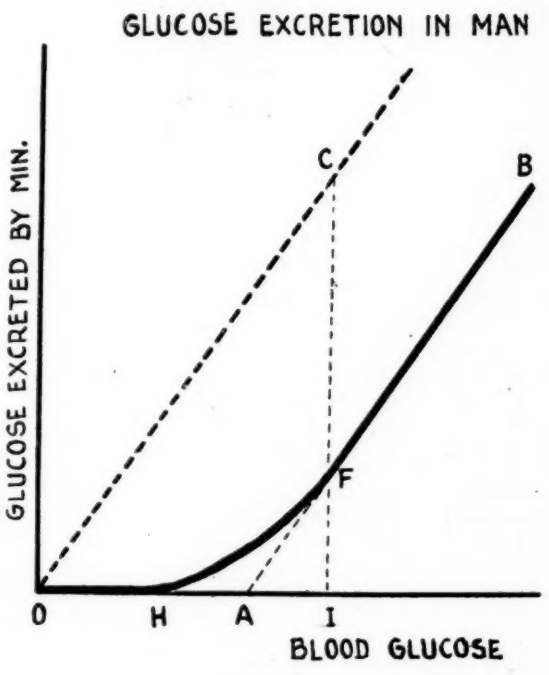

FIG. 5

excretion by the human kidney. Unfortunately, this description is correct only when the blood sugar is higher than about 350 mg. per 100 ml. Now, in diabetes mellitus, which causes the most common variety of glycosuria, the level of blood sugar fluctuates as a rule between 150 and 350 mg. per 100 ml. These are the levels of blood sugar at which the law of glucose excretion would thus be most interesting for the clinician.

When, in a normal man, glucose output per unit time is measured while the concentration of the blood sugar is progressively raised, the relation plotted with respect to the ordinates (excreted glucose) and the abscissa (blood glucose) is shown by a line which may be divided into three parts, each of which has quite different features (Fig. 5). The first part, coincident with the abscissa, indicates the absence of excretion. The second part is a curve with a hyperbolic shape. The third part is the straight line described by Shannon and Fisher and corresponding to glucose excretion at very high concentrations of blood sugar.

The blood concentration OH is the lowest level of blood glucose at which sugar is found in the urine when the glycaemia is rising. It may be called the *minimal threshold.* At that level of blood sugar, although there is a slight glycosuria, the power of the kidney to reabsorb glucose is far from being saturated. In Fig. 5, where the filtration is supposed to be uniform and set to 120 ml. a minute, the amount of glucose reabsorbed at any concentration of blood sugar is shown by the ordinates between the line OC (filtered glucose) and the line HFB (excreted glucose). It is easy to see that when the glucose concentration rises from H to F the amount of reabsorbed glucose steadily increases until it reaches a maximum equal to FC, which is the TmG of Smith. From then on, the reabsorption is constant (and equal to TmG) for any further increase of blood sugar.

The curvilinear aspect of HF means that the reabsorptive capacity of the kidney is saturated in a slowly progressive way, when the amount of filtered glucose is steadily increased. This observation has been explained by supposing that the glucose reabsorptive power varies considerably among different individual nephrons. This would not be surprising, as among the nephrons there are obviously wide differences in shape, length, and in proportions between glomerulus and tubule. Therefore, considering their glucose reabsorptive capacity, some nephrons may be called "weak" and some "strong."

According to such a view, the minimal threshold OH (sometimes called "threshold of appearance") is the concentration of blood sugar at which the glucose reabsorptive capacity of the "weakest" nephrons is just saturated. The concentration of blood glucose OI might be called the *maximal threshold,* being the glycaemia at which the reabsorptive capacity of the "strongest" nephron is saturated.

Finally, the point A, where the extrapolation of the straight line BF intersects with the abscissa, is the threshold of Shannon and might be called the *mean threshold.* This is the level of blood glucose at which the reabsorptive power of all the nephrons would be saturated if this power were the same in each of them and were equal to the *mean* of the actual reabsorptive power of all the individual nephrons.

The mean threshold is the value which ought to be subtracted from the blood sugar to calculate glucose excretion by Shannon and Fisher's formula :

Excreted glucose = (blood sugar − mean threshold) × filtration.

It is also the amount of glucose which is reabsorbed from each millilitre of glomerular filtrate when the capacity of the nephrons for reabsorbing glucose is completely saturated.

It is of interest to point out that a relation similar to that of glucose excreted/blood glucose would be found between the level of water uphill and the flow of water downhill, supposing that in a water-duct with a rectangular section the flow of water were hindered by a transverse wall, sloping from side to side (Figs. 6 and 7) (Govaerts, 1949b, 1950).

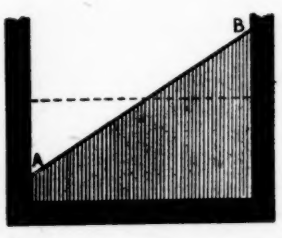

FIG. 6

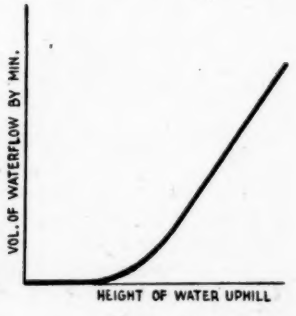

FIG. 7

The relation would first be a horizontal line coincident with the abscissa, then a curve with a hyperbolic shape, and then a straight line with a definite slope. When the water completely overflowed the dam the hindrance to the flow would be constant and equal to that of a horizontal wall with a height equal to the mean of A + B.

This comparison helps one to understand the effect of inequality of the nephrons on the excretion of glucose.

Titration of Saturation Capacity of Individual Nephrons

Let us consider the hyperbolic curve in Fig. 8. If we suppose that every nephron gets an equal part of the total

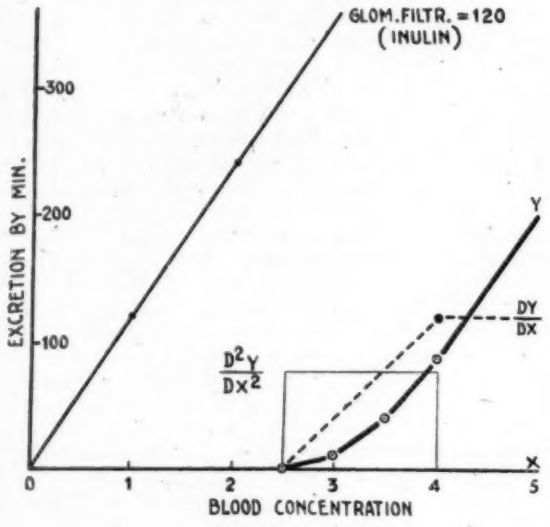

FIG. 8

volume of filtration, and that the individual nephrons differ only in their glucose-reabsorption capacity, it can be easily proved that the differential coefficient $\frac{dy}{dx}$ divided by the filtration would indicate for any point on the curve—that is, for any value of blood glucose—the percentage of completely saturated nephrons.

Moreover, the second differential coefficient $\frac{d^2y}{dx^2}$ divided by the filtration would indicate (in percentage of the total number of nephrons) how many more nephrons get saturated for any increment of blood glucose.

Another method of calculation has been employed by Smith (1951), who uses much more complicated premises. He stresses the necessity for caution in applying these formulae to the study of the frequency distribution curve of the reabsorptive power of the nephrons in a human patient. Such a method of calculation could not give results representing actual facts unless one has gathered, by repeating measurements on the same patient, sufficient data from which a curve with a very precise shape can be drawn. It is essential that the collection of urine be complete and accurately timed, that the analyses be made in duplicate, and that, during the whole experiment, the filtration rate be constant. Despite our present technical achievements such conditions are rarely met.

The most urgent task is thus to multiply correct observations, which are still infrequent. One ought to find out what would be the change in glucose excretion when only one of the three variables—glycaemia, filtration, reabsorption—is systematically modified.

It has been repeatedly claimed that several hormones are able to change the TmG or the threshold. Such an opinion is based on the fact that glycosuria has been repeatedly observed in pregnancy, hyperthyroidism, and acromegaly. But in such conditions both glycaemia and filtration are often abnormal.

Hormonal Factors which Might Change the Threshold

Insulin has been said to raise the threshold, but the observations are contradictory and therefore a conclusion cannot be reached at present.

More recently, adrenocortical or pituitary hormones were also considered as capable of changing either the threshold or the TmG. Rusznyák *et al.* (1947) stated that a deoxycortone glucoside ("hydrosoluble percorten") would raise the threshold of glucose in the dog. Lambert *et al.* (1948) could not confirm these findings; they even got, in man, entirely different results. The deoxycortone glucoside decreased the TmG by about 30%. It did not change the glomerular filtration rate. Its action was similar to that of a very small dose of phlorizin (which is also a glucoside). On the other hand, deoxycortone acetate had no action on TmG. Therefore, Lambert *et al.* (1949) were inclined to link these properties of deoxycortone glucoside with the glucoside radical rather than with the corticosterone itself.

Conn *et al.* (1949) have claimed that A.C.T.H. could lower the tubular reabsorptive capacity for glucose (TmG). This also was not confirmed by the work of Lambert *et al.* (1951a, 1951b), who did not observe any change in the TmG of patients who were injected with A.C.T.H. a few hours previously or treated with A.C.T.H. for several days.

In conclusion, the investigations concerning the possibilities of altering either TmG or the mean threshold show the remarkable stability of these characteristics of kidney function. They indicate that hormonal influences are less active in this respect than had been previously assumed.

However, one may observe, in a certain number of human beings, congenital or acquired abnormalities in glucose reabsorption which bring about glycosuria, although the blood sugar is normal. We shall now devote the final chapter of this lecture to the analysis of such conditions.

Renal Diabetes

In the human species the level of blood glucose at which glycosuria just begins is not the same for different individuals, and its frequency might be illustrated by a normal distribution curve. The most frequent value of the minimal threshold (also called the threshold of appearance) is probably about 170 mg. per 100 ml. Since, in the normal, the blood glucose does not rise to such a figure even after a meal rich in carbohydrates, there is in the great majority of human beings no glycosuria in physiological conditions. On the other hand, in a few patients the threshold is low enough to be overflowed during the rise in blood sugar (to 130–140 mg. per 100 ml.) which normally occurs after a meal or after ingestion of glucose. Such a condition is called "innocent glycosuria" or "orthoglycaemic glycosuria."

Finally, one may observe in a few human beings such a low renal threshold that glycosuria is permanent even when the concentration of blood glucose is lowered to hypoglycaemic levels. These several types of glycosuria due to a low renal threshold and differing only by their intensity may all be called "renal diabetes." This abnormality of the threshold is obviously a constitutional and hereditary character. Its relationship with diabetes mellitus is open to question.

Many authors, especially Hjärne (1927), deny any connexion between renal diabetes and diabetes mellitus. Others accept that patients with renal diabetes might occasionally become true diabetics. What is certain is that when such an association occurs the renal abnormality persists.

This is well shown by observation of a female patient whom I have known for more than 25 years. She was first seen when she was 30 years old, with a normal carbohydrate metabolism and such a marked degree of renal diabetes that she still had glycosuria when the blood-sugar was lowered to 40 mg. per 100 ml. A few years later she became diabetic, with fairly high blood glucose and a very large glucose excretion. She is still diabetic, but, as ever, when her blood glucose is brought down by insulin, the glycosuria does not cease even at hypoglycaemic levels.

This example shows that renal diabetes manifests itself in two ways: (1) these patients excrete much more glucose than the common diabetics when both have the same level of hyperglycaemia; and (2) they keep excreting glucose even when the blood sugar is brought to normal or even lower.

These two characteristics, which were stressed by Cambier (1933, 1934) and by me in studying renal diabetes, imply both a low minimal threshold and an abnormally small global reabsorptive capacity (TmG). These two characteristics were found again in some cases recently studied by Dr. Lambert and me, using thiosulphate to measure glomerular filtration (Govaerts and Lambert, 1949). This view was also confirmed by Nielsen (1948).

"Pseudo-renal Diabetes"

On the other hand, Friedman *et al.* (1942) describe, under the name of "renal diabetes," a condition observed in several patients whose renal minimal threshold was low, and nevertheless the reabsorptive capacity TmG and the mean threshold were normal. Similar observations were reported by Reubi (1951). This author confirms our opinion that constitutional renal diabetes is characterized both by a low minimal threshold and by a small TmG. He proposes that the name of "pseudo-renal diabetes" be given to the condition described by Friedman *et al.* and characterized by a low minimal threshold and a normal TmG. He thinks that the "pseudo-renal diabetes" is not a congenital defect, but rather the consequence of renal disease. These several conditions may be illustrated as in Fig. 9.

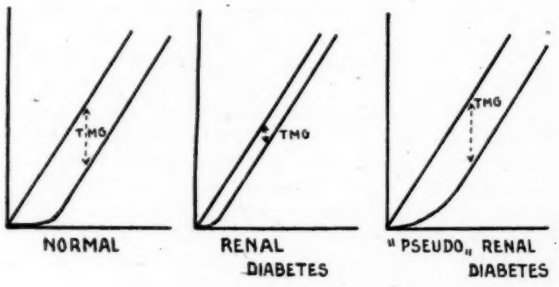

FIG. 9

Dr. Lambert and I have elsewhere discussed the meaning of the abnormal function of the kidney in constitutional renal diabetes (Govaerts and Lambert, 1949). One might suppose that the basis of renal diabetes was an anatomical defect—for instance, the proximal part being absent or too short. According to that hypothesis one would expect to find some disturbance in the phosphate reabsorption, which is known to be effected by the same proximal part of the tubules as that which reabsorbs glucose.

In two cases of renal diabetes in which Dr. Lambert studied the phosphate excretion at very different levels of blood phosphates, the characteristics of phosphate excretion were completely normal. Therefore the congenital abnormality which is called renal diabetes is not likely to be a structural defect in the tubules. It is more probably due to a disturbance in those enzymatic processes that make possible the transfer of glucose through the tubular cells.

As yet we have had no opportunity of studying patients with "pseudo-renal diabetes." This condition might be due to an increased dispersion of the frequency distribution curve of the nephrons in respect of their reabsorptive capacity.

It is interesting to note that a condition similar to "pseudo-renal diabetes" was temporarily observed in man, in cyanide poisoning. Lambert *et al.* (1950) studied two patients who, when recovering from an acute cyanide poisoning, excreted glucose in their urine, although the blood sugar was not increased. While their minimal threshold was low, their tubular maximal reabsorptive capacity (TmG) was normal, and therefore at high levels of blood sugar the glucose excretion was not greater than in normal individuals.

It may be of interest to compare these observations in man with some recent experiments by Nicholson (1949), who found that, in the dog, cyanide poisoning of one kidney produced a slight glycosuria without affecting the glucose-reabsorption capacity. Any interpretation concerning the mechanism of that remarkable effect of cyanide poisoning would be at present entirely hypothetical.

Conclusion

I have given a short account of the mechanism of glucose excretion by the human kidney.

We may conclude that in man the fundamental mechanisms of that excretion are identical to those which Richards, Wearn, and Walker found out in the kidney of amphibians. Furthermore, we have seen that several mathematical expressions can be formulated concerning the relation between blood sugar and glucose excretion in man. Some of these formulae are reasonably simple, but they are applicable only when the blood sugar is extremely high. Other formulae concern moderate levels of hyperglycaemia, as are often found in diabetic patients. Unfortunately they are much more complicated and more insecure in their applications.

Nevertheless, taking into due account their limitations, these mathematical developments have allowed the glomerular filtration to be measured by glucose excretion and the significance of renal diabetes to be appreciated.

There remains a wide field to be explored. Among the questions of present interest we might cite: (1) the precise measurement of the minimal threshold at stated rates of filtration; (2) the influence of the several hormones on the threshold and on TmG; and (3) the mechanism by which cyanide and other toxic substances disturb glucose excretion.

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Participants from 30 European and other countries met at Chichester on July 19 for a seminar on Mental Health and Infant Development, sponsored by the World Federation for Mental Health, whose headquarters are in London. The seminar was opened by Sir Weldon Dalrymple-Champneys, Deputy Chief Medical Officer of the Ministry of Health, and continues until August 10. The World Health Organization, Unesco, the International Children's Centre of Paris, the U.S. National Advisory Mental Health Council, and the Grant Foundation of New York are all contributing to the conduct of the seminar, which is for medical officers of health, paediatricians, psychiatrists, psychologists, social workers, district nurses, and others. Most of these hold senior or responsible positions in the public health service of their own countries, or in training institutions connected with public health. The 15 teachers, drawn from the United Kingdom, France, and the U.S.A., include Miss Anna Freud, of the Child Study Centre, London; Dr. Margaret Mead, anthropologist, of the American Museum of Natural History; and Professor Boutonier, psychologist, of the University of Strasbourg. The director of the seminar is Dr. Kenneth Soddy, assistant director of the World Federation for Mental Health.

THE CONTROL OF GASTRIC ACIDITY

BY

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It is probable that none will question the validity of the statement by Sippy (1923) that gastric hydrochloric acid was the greatest known hindrance to the healing of peptic ulcer. Furthermore, it cannot be doubted that the high relapse rate of duodenal and oesophageal ulcer would be materially reduced if gastric acidity could be controlled over the 24 hours. Hitherto attempts at exerting such control have proved fruitless because of the transience of action of drugs administered intermittently.

The inadequacy of most forms of therapy in controlling acidity is well known. Douthwaite (1939) and E. B. French have shown that aluminium hydroxide gel and magnesium trisilicate when given hourly failed to neutralize the gastric hydrochloric acid for more than a quarter of an hour; this work has been confirmed by others. All alkalis given by mouth, even in large doses, have such a transient action as to be valueless. Hourly feeds of milk are similarly ineffective in controlling gastric acidity, as shown by the experimental work of Nicol (1939), who argued that the main reason for the fleeting action of alkalis and milk in patients with duodenal ulceration was the rapid emptying of the stomach. Hitherto the most effective method of neutralizing stomach contents over long periods has been the continuous intragastric milk and alkali drip, introduced by Winkelstein (1932). This is usually well tolerated by patients, but has practical disadvantages.

It occurred to us that the principle and effect of the intragastric milk-alkali drip might be provided by the continuous sucking of tablets containing milk solids and alkali. Such tablets were prepared and their effect on controlling gastric acidity was studied.

Observations

The Tablets.—For our experiments we needed a tablet in the form of a compressed disk, which could be conveniently lodged between the cheek and the gum and which would dissolve slowly and yet satisfactorily depress gastric acidity. It was important that the tablets should be palatable if patients were to suck them continuously. Our final choice led to the preparation of a compressed disk (tablet M) 1 in. (2.5 cm.) in diameter, and ¼ in. (0.5 cm.) in thickness. It consisted of:

Solids from whole-milk, combined with dextrins and maltose	40 gr. (2.4 g.)
Magnesium trisilicate	3.5 gr. (0.25 g.)
Magnesium oxide	2 gr. (0.12 g.)
Calcium carbonate	2 gr. (0.12 g.)
Magnesium carbonate	0.5 gr. (0.03 g.)
Ol. menth. pip.	q.s.

This tablet, if lodged between gum and cheek, was found to take 20 to 30 minutes to dissolve. Its food value was approximately 11 calories.

Dr. J. N. Hunt, who carried out the chemical analyses reported below, determined the neutralizing power of tablet M and its individual constituents. He reported that its neutralizing power was predominantly due to the magnesium oxide component. He pointed out that the total acid excretion in the urine over 24 hours is approximately 650 ml. of 0.152/N HCl. Thus an equivalent amount of alkali could be given over the 24 hours without danger of alkalosis. This is about equal to 30 gr. (2 g.) of magnesium oxide in 24 hours.

The proportion of the adjuvant antacids included in the tablets for their neutralizing action was chosen with the object of avoiding diarrhoea or constipation.

Study 1

Seven patients suffering from duodenal ulcer and presenting a typical high acid curve were selected. In each case a gruel meal was given on two consecutive days, specimens being withdrawn at 15-minute intervals. During the second meal, after the third specimen had been taken, an M tablet was placed between the gum and cheek and instructions were given that it should not be chewed but allowed to dissolve. As soon as a tablet dissolved it was replaced: it was found that the patients required three tablets in each hour. In six cases the tablets were sucked for an hour and in the seventh case for three-quarters of an hour. Specimens of the test meal were withdrawn until the stomach was empty.

The results of this study are shown in Figs. 1, 2, and 3. Figs. 1 and 2 show the test-meal curves in the six cases in which M tablets were sucked for an hour. It will be seen that during that hour gastric acidity was continuously depressed and that there was a slight rise in acidity when the tablets were discontinued. The single case shown in Fig. 3 again shows the effective neutralizing action of the tablets.

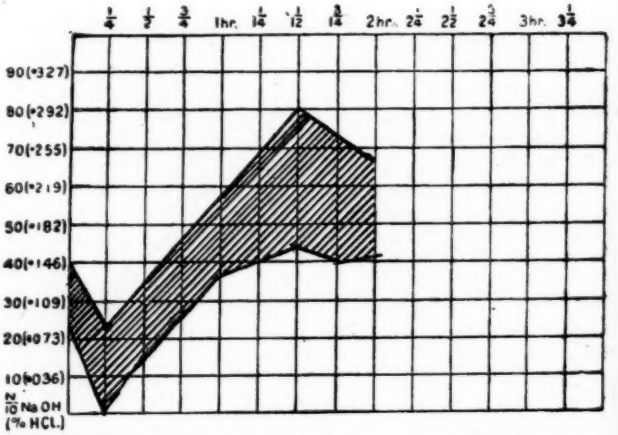

FIG. 1.—Superimposed gruel test-meal curves of six patients with duodenal ulcer.

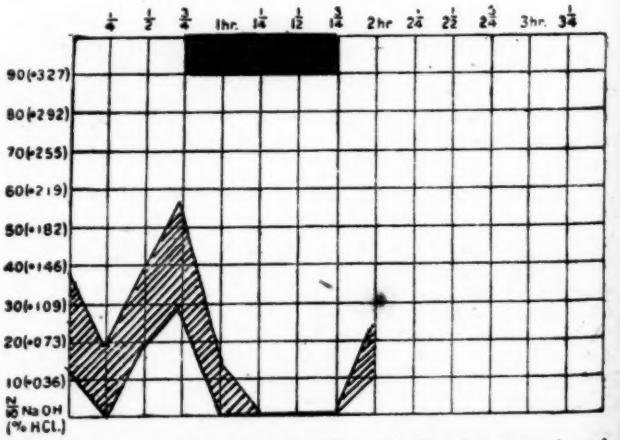

FIG. 2.—The same cases as in Fig. 1. Gruel test-meal and sucking of M tablets during the period indicated by the black rectangle.

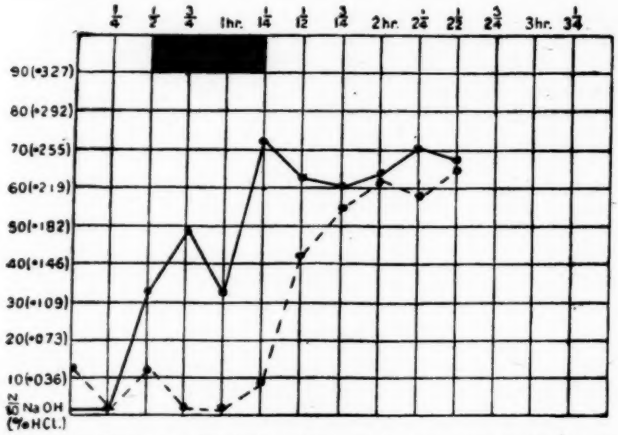

FIG. 3.—Case of duodenal ulcer with hyperchlorhydria and delayed emptying. The continuous line represents the acid curve as determined by gruel test-meal. The interrupted line shows the effect on this of sucking M tablets during the period shown by the black rectangle.

Study 2

A possible fallacy in attributing the successful results obtained in Study 1 to the tablets might have been the swallowing of saliva, the flow of which had been stimulated by the action of sucking. A further experiment was therefore undertaken in which the effect of sucking M tablets was compared with that of boiled sweets. In these tests the small neutralizing action of gruel was eliminated.

A second series of patients was selected. This consisted of five men with radiologically demonstrable duodenal ulcer and one woman with a gastric ulcer whose gruel meal showed hyperchlorhydria. Their ages varied from 32 to 56 years, and symptoms had been present from 2 to 15 years.

The patients were given no food or drink on waking. At 8.30–9 a.m. a Ryle's tube was passed and left in the stomach for half an hour, in order to allow the effect of any physical or psychological stress incurred during the passing of the tube to subside before the test was started. The fasting juice was then withdrawn, the volume measured, and 15 ml. kept for analysis. The remainder of the gastric aspirate was then returned through the Ryle's tube. This procedure was repeated at 15-minute intervals for three hours. The first and third hours served as control periods. During the second hour the patient was given either M tablets or boiled sweets to suck. Each gastric sample was withdrawn with care, and the aspirate was carefully mixed before the 15-ml. sample was removed for analysis. The *p*H of each 15-minute sample was estimated with an electrical *p*H meter.

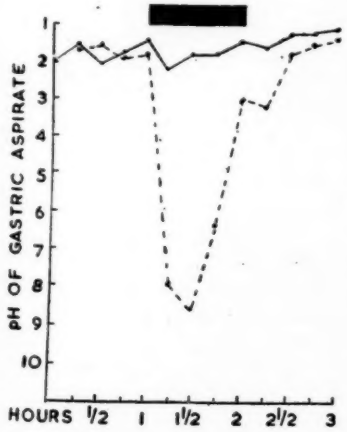

FIG. 4.—Case of duodenal ulcer. Comparison of the effects of sucking boiled sweets (continuous line) and M tablets (interrupted line). The boiled sweets have a slight initial effect, and the alkaline tablets have a pronounced neutralizing action. In this and the subsequent two graphs the *p*H scale is inverted so that acidity increases upwards along the ordinate. The black rectangle marks the time of administration of sweets and tablets.

The effect of sucking M tablets on the gastric *p*H was studied in all six cases. The effect on the gastric *p*H of sucking boiled sweets was so trivial in the first three that such control studies were then abandoned.

Results

The results obtained in two patients are shown in Figs. 4 and 5. It will be seen that M tablets exert an effective neutralizing action on the gastric contents, and that the boiled sweets were ineffective. Sucking boiled sweets produced a slight rise in *p*H during the first half-hour, and it is probable that this was due to the swallowing of saliva. It was clear, however, that the neutralizing power of M tablets was due to their constituents. A similar result was obtained in the third case, in which the effect of sucking M tablets and boiled sweets was compared.

In Fig. 6 the results obtained with M tablets in the six cases studied in this group are shown. It will be seen that an effective increase in *p*H was obtained in all during the period of tablet-sucking. In some instances a slight fall in *p*H will be noted toward the end of the one-hour test period. This can be attributed to lunch being brought into the ward, with a consequent psychic (cephalic) stimulation of gastric secretion.

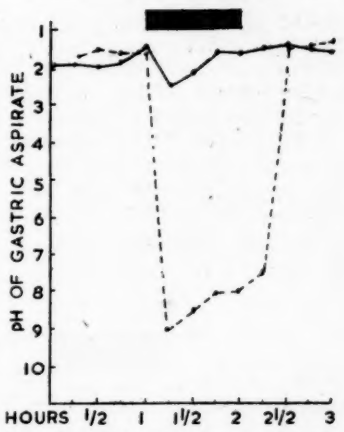

FIG. 5.—*p*H curves from a further case of duodenal ulcer, to show that the sucking of a control tablet of boiled sweets (continuous line) has a negligible effect on the gastric *p*H when compared with the M tablets (interrupted line).

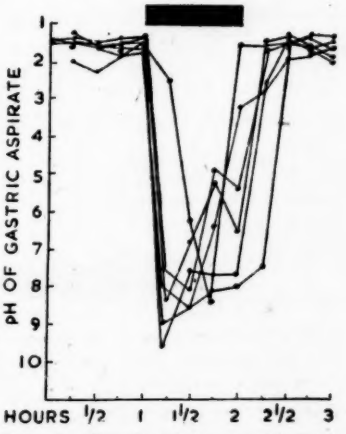

FIG. 6.—Graph of the gastric *p*H during a three-hour period in six patients with peptic ulcer. During the second hour the patients were sucking M tablets. There was a marked rise in *p*H in all cases. The fall of *p*H towards the end of the second hour in some cases occurred when lunch was brought into the ward.

Discussion

The results of our initial experiments have confirmed our premise that gastric acidity can be effectively controlled by sucking a suitable tablet of milk solids and alkalis. The reduction of gastric acidity obtained is far more pronounced and prolonged than that obtained by any previous method, other than the continuous intragastric drip, with which it compares favourably. All patients found the tablets pleasant to take and that they did not produce constipation or diarrhoea.

A possible risk of this treatment is that of alkalosis. But if the M tablets are sucked only between meals, starting half an hour after each meal, the number used daily would be within the limits of safety.

We conducted further experiments to compare the M tablet with other tablets of substances in common use. We found none which was equally effective. It will be seen in Figs. 7, 8, and 9 that the influence of aluminium hydroxide depends largely on the frequency of administration—a fact which suggests that the rate of disintegration of an antacid sucking tablet is of great importance. One tablet of mixed carbonates which we tested took four hours to dissolve fully, and produced a negligible effect on gastric acidity. Further experiments are being undertaken to assess the neutralizing action of the tablets over longer periods.

It is our contention that the continuous sucking of alkaline tablets between meals is the most convenient and effective

method of neutralizing gastric acidity. We have in mind that it should be used not only during periods of active treatment of oesophageal, gastric, and duodenal ulcer but also to prevent relapse. It is the high relapse rate which has hitherto baffled all forms of therapy. If acid control can be achieved, it is reasonable to hope that recurrence of peptic ulceration, and thus chronicity, may be avoided. The tablets can replace the extra feeds of orthodox treatment and thus reduce the likelihood of obesity developing.

The main deficiency of this treatment is that it fails to control the night acid. For this a milk drip can be used.

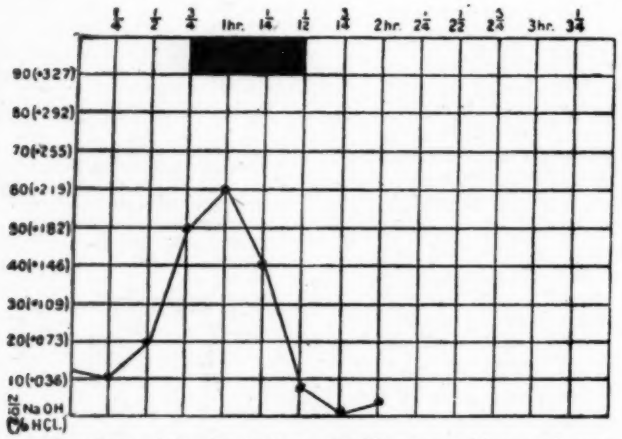

FIG. 7.—Case of duodenal ulcer. Sucking two tablets, each containing 10 gr. of aluminium hydroxide, at fifteen-minute intervals does not control the gastric acidity during a gruel test-meal.

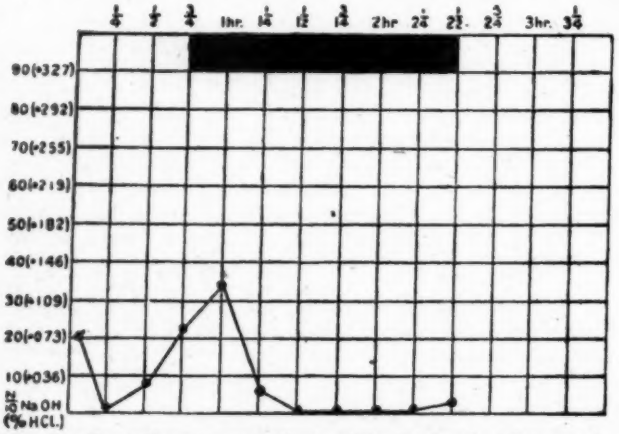

FIG. 8.—Curve from same patient as Fig. 7, showing that gastric acidity is controlled by sucking aluminium hydroxide (20 gr.) at five-minute intervals. Gruel test-meal.

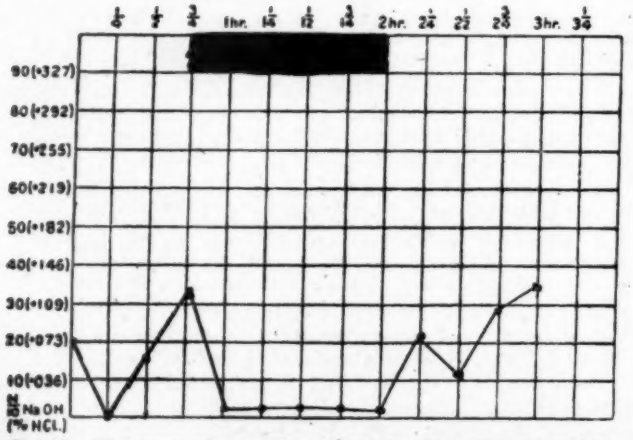

FIG. 9.—The same case as Figs. 7 and 8. The effect of sucking M tablets continuously. The free HCl during a gruel test-meal is neutralized while the tablets are sucked.

Alternatively there are belladonna and the ganglionic paralysants, which are of value. It is agreed that belladonna has a negligible effect on gastric acidity during gastric digestion (Douthwaite, 1947), and the same criticism applies to hexamethonium bromide (Douthwaite and Thorne, 1951). Nocturnal secretion depends on a neural mechanism and can be expected to be depressed by drugs which block the vagal ganglia or nerve ends. This explains the powerful antacid effect of hexamethonium as reported by Kay and Smith (1950a, 1950b) and of large doses of belladonna given by Riddell (1951). These drugs, if used in adequate dosage, should provide the answer to controlling the night secretion.

Summary

Experiments are described which treat of the effect on gastric acidity of sucking milk-alkali tablets. It is shown that they strikingly reduce gastric acidity, and that their effect is more prolonged than that obtained by any of the customary forms of alkali therapy, apart from the milk-alkali drip. It is suggested that the continuous sucking of these tablets will hasten cure and prevent relapse of peptic ulcers.

We have to thank the staff of the Pharmaceutical Department of Messrs. Horlicks Limited for preparing and supplying the tablets for these experiments.

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AN INVESTIGATION OF THE AGED SICK IN THEIR HOMES

A SURVEY OF 215 PATIENTS IN THE BOROUGH OF ST. PANCRAS

BY

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From July, 1949, to January, 1951, all aged patients—215 (80 males and 135 females)—referred to St. Pancras Hospital for admission were visited in their homes. Their domestic state and their nursing care at home are described. This survey is highly selective compared with a random survey of the aged population—for example, Sheldon's (1948a) survey of the aged of Wolverhampton—in that all the old people were ill and considered by their general practitioners to require hospital treatment.

The age distribution, in five-year groups, was as follows:

	Males	Females
Under 65 years	12%	5%
65–69 ,,	8%	9%
70–74 ,,	21%	20%
75–79 ,,	36%	25%
80–84 ,,	17%	28%
85 years and over	6%	13%

The proportion of female patients over 80 is nearly twice that of the male patients. This supports the observation of Sheldon (1948b), who found that below the age of 80 the proportion of old people receiving medical treatment is roughly equal in the two sexes.

After the age of 80, however, he found that the proportion of men receiving treatment in relation to those not receiving it falls abruptly, while with women the reverse occurs. Sheldon suggests that "at advanced ages men are just merely holding on to life—they are by then very well or very ill—whereas women possess a hold on life which allows them to go on living even though they are in chronic ill-health."

It is interesting also to compare in the various age groups the percentages of patients with the percentages of people over 65 in the general population (Table I).

TABLE I

Age Group (Years)	Male Patients %	General Population of St. Pancras. Males %	Female Patients	General Population of St. Pancras. Females %
65–74 ..	33	73	31	69
75–84 ..	60	24	56	27
85+	7	3	13	4

The percentages for the general population of St. Pancras are taken from the Registrar-General's Report (1947). This table shows that the percentages of patients in relation to the percentages in the general population increase in the higher age groups.

Social and Domestic Circumstances

It is fortunate, for the purposes of comparison, that St. Pancras was one of the boroughs chosen by the Rowntree Committee for their investigation of the social conditions of the aged. The Rowntree Report (1947a) states: "In London, as might be expected, old people are housed somewhat differently from those living in provincial cities. Compared with those in other towns, many more of London's old people live in tenements, flats, and single rooms; and relatively fewer live in individual houses." The type of dwelling occupied by the 215 aged sick of the present survey was as follows: tenements, 159 (74%); flats, 39 (18%); whole house, 10 (5%); hostel or almshouse, 7 (3%). The tenements are converted old-fashioned houses. Many of these are manifestly unsuitable for aged people, not only on account of their lack of amenities but also because of the numbers of stairs. The floor-level of the 198 patients who lived in either flats or tenements was: basement, 7%; ground, 22%; first, 29%; second, 19%; third, 19%; fourth or higher, 4%. It will be seen that less than one-quarter of the patients lived in rooms at the street level. Difficulty in managing stairs was common, and this mainly accounts for the high proportion of aged patients confined to house or room.

The stairs not only hindered many patients from getting out, but also complicated life within. Often the bathroom and lavatory, frequently shared by other tenants, were one or more flights of stairs away. Of the 159 patients living in tenements, no fewer than 59% were unable to reach the water-closet because of its inaccessibility. It was often situated in the yard outside or in the basement: for this reason commodes and pails were used in the patient's room.

In these respects the 18% of patients living in flats were fortunate in that the w.c., bathroom, kitchen, and water supply were closer at hand and on the same level as the bedroom.

In only 10 cases did the patient occupy a whole house. There were few instances of gross overcrowding, but in many the available accommodation was barely sufficient. In over half the cases where the patient lived alone he occupied a single room. In two-thirds of the cases a patient living with his spouse or one other relative occupied two rooms. In three instances four persons, including the patient, occupied two rooms.

Domestic Structure

Table II shows the marital state of the 215 patients investigated. One may note the smaller proportion of married patients in the 215 referred for hospital admission,

TABLE II.—*Marital State*

	State	No.	%	% in Random Sample of Aged in Borough
Male	Married ..	43	54	67
	Widowed ..	23	29	25
	Single	14	17	8
Female	Married ..	23	17	28
	Widowed ..	93	69	52
	Single	19	14	20

The figures for the random sample are taken from the Rowntree Report (1947b) for the aged population of the Borough of St. Pancras.

compared with that of the general aged population. The high proportion of widows (69%) is also striking.

The household composition of the 215 patients is shown in Table III.

TABLE III.—*Household Composition*

	Men			Women		
	M.	W.	S.	M.	W.	S.
Living with spouse only ..	29	—	—	17	—	—
,, ,, ,, and relative	14	—	—	6	—	—
,, alone	—	9	13	—	59	17
,, with relatives	—	14	1	—	34	2

1. *Married Patients.*—Of the married male patients 68% lived with their spouse only, there being no other relative in the house; for female patients the proportion was higher —74%. The figures for the general population were 45% for men and 19% for women. In the present survey the high proportion of married women living with their husbands only is remarkable. The most likely explanation of this is that when the wife in an aged couple falls ill she is likely to require admission to hospital because of the difficulties arising when the domestic and nursing care depends entirely on the husband.

2. *Widowed Patients.*—Of the widowed male patients 39% were found to be living alone; for female widowed patients the percentage is 63%. In the case of widowed patients living with relatives, the daughter, often with domestic responsibilities of her own, was found to carry the heaviest burden.

3. *Single Patients.*—In this group there were 14 male and 19 female patients. Of these only one man and two women were living with relatives: the man was living with his sister and had to be admitted to hospital when she required hospital treatment for her varicose ulcer.

Patients Living Alone

A high proportion of the patients lived alone—22 of the 80 male patients (27.5%) and 76 of the 135 female patients (56%). The general practitioner attached much importance to this when referring the patient to hospital: it undoubtedly tilted the balance towards admission in many cases.

Necessity for Defining the Term "Living Alone"

Sheldon (1948c), in his Wolverhampton survey, points out the ambiguity of the phrase "living alone." Early in his investigation he visited a man in his seventies who appeared in the social survey report as living alone. True he was physically alone in the house, but two married daughters in the same street did much of his domestic work. From a functional point of view he was part of a family unit spread over three houses. The social survey of Wolverhampton, and that of St. Pancras by the Rowntree Committee, recorded patients as living alone in the sense of being alone in the house, and made no reference to regular contact with rela-

tives. Sheldon (1948c) showed that the figures had to be halved (4.8% of the sample instead of 10.7% as recorded in the social survey report) to obtain an estimate of those living really alone, without regular family contacts.

In the present survey an attempt was therefore made to discover how much the relatives living near were aiding the aged patient, and also to what extent he was getting help from neighbours and friends. Thus 22 male and 76 female patients were living alone in that there were no relatives in the same house: they can be grouped according to whether they lived entirely alone or in lodgings, and to whether the relatives were living so close that the various households functioned as one. The figures for the respective groups are shown in Table IV.

TABLE IV.—*Classification of Patients Living Alone*

	No.	Group A1	Group A2	Group A3
Male patients ..	22	6	15	1
Female ,, ..	76	25	38	13
Total ..	98	31	53	14

Group A1 = 14·5% of the total of 215 patients; group A2 = 25%; and group A3 = 6·5%.

Group A1 is composed of patients living entirely alone—that is, either they have no relatives, or the relatives live so far away that there has been no regular contact for years. Furthermore, these patients were getting no more than casual help from neighbours. Of the 14 patients whose principal cause of admission was the fact that they were living in squalor and suffering from malnutrition and neglect, 13 were in this group: there were four men and nine women, the majority living in single rooms in tenement houses. Other tenants knew so little about these patients that it was often difficult to determine how long they had been ill. Of the six men in group A1, four had no relatives; the other two were antisocial and had quarrelled with their relatives, who, because of this, seldom visited them more than once a year. Of the 25 female patients in the group, 15 had no living relatives. Of the remaining 10, only one had a relative living in London, and this was a nephew who paid the rent of the flat.

Group A2 includes those patients living alone but getting help from neighbours and friends, patients getting a little help from relatives, and 12 living in lodgings and hostels who had no relatives, or at least no regular contact with them. Of this group seven men and 23 women were living in tenement dwellings and dependent on the help of neighbours and friends during illness. The neighbours were usually other tenants in the same house, and they helped the patients more often than did the friends.

Group A3 is the smallest group of patients living alone, and corresponds with Sheldon's group in which individuals in two or more houses function as one household. The relatives in this group were for the most part the daughter or daughter-in-law, who lived close to the patient and were able to devote a few hours each day to his care. Also in this group are eight old people who normally lived alone; but because of their illness a relative had moved to live with them in six cases, and in the other two the patient had moved to live with a daughter. In this group there is only one man who when ill went to live with his widowed daughter in her two rooms. He slept in a camp bed, but had to be admitted to hospital when too ill to be nursed at home.

Comments on Patients Living Alone

As might be expected, the proportion living alone in this sample of 215 patients is much higher than that of the aged population in general. These proportions are compared as follows:

	Males	Females
Present survey	27·5%	56%
St. Pancras aged population ..	18%	29%

Both groups refer to "living alone" in the sense that there are no relatives in the house.

The figures for the percentage of the aged population living alone are taken from the Rowntree Report (1947b), in which "living alone" meant there were no relatives in the house. No account was taken of the proximity of relatives, nor are figures given for aged people living entirely alone—thus preventing an exact comparison.

Management of Illness in the Home

Visiting the patient's home made it possible to find out how his illness was being managed, and thus to understand the burden imposed on the rest of the community, in assessing which the mobility of the patient and the duration of his illness must be taken into account.

Table V shows that the mobility of the patients at the time they were referred to hospital was approximately the same in the two sexes. Over two-thirds were confined to bed.

TABLE V.—*Mobility of Patients*

	Males %	Females %
Confined to bed	69·0	68
,, ,, room or house ..	23·5	29
Able to get outside house ..	7·5	3

The mobility of the patients living alone compared with those living with relatives is shown in Table VI.

TABLE VI

	Living Alone (M. and F.; 98 Patients)	Living with Relatives (M. and F.; 117 Patients)
Confined to bed ..	66·5%	70%
,, ,, room or house	25·5%	26·5%

Duration of Illness

Table VII shows the distribution of patients according to length of time in bed, and Table VIII the length of time of confinement to the house. Neither table measures the duration of the illness, but they give an idea of the stress imposed upon those caring for the patient and of the period of care. The duration of the patients' disabilities is expressed in this way because many were unable to say how long their symptoms had lasted. Some of the bedridden patients had, of course, been confined to their rooms for a time before they had taken to their beds.

TABLE VII.—*Duration of Stay in Bed*

	% of 55 Males	% of 92 Females
0–1 month	76	73
1–3 months	17	13
3–6 ,, ...	3·5	4
Longer than 6 months	3·5	10

TABLE VIII.—*Duration Confined to Room*

	% of 19 Males	% of 39 Females
0–1 month	42	28
1–3 months	16	13
3–6 ,, ...	5	10
Longer than 6 months	37	49

Approximately three-quarters of the patients of each sex were in bed for less than a month before admission to hospital was sought. There is not much difference in the length of stay in bed between the patients living alone and those living with relatives, with the exception that the two male and the nine female patients who had been confined to bed for longer than six months all lived with their relatives. One man had been confined to bed for two years and one woman for six years before admission was sought.

The length of time the patients were confined to their room or house (but had not yet taken to bed) is shown in Table VIII. 37% of the men and 49% of the women had kept to their room for longer than six months; the men were being cared for by relatives, whereas seven of the 19 women were living alone. One woman, living alone, had been confined to her room for five years, and another, cared for by her daughter, had not been outside the house for 10 years. This illustrates the tenacity with which old people cling to familiar surroundings in spite of severe disabilities, and their reluctance to enter hospital.

Domestic and Nursing Care

An attempt was made to discover the onus of the domestic and nursing care during the patient's illness and the sharing of this burden among relatives and neighbours. As frequently more than one person was making a contribution, the answers to such a question as "Who is looking after the patient?" are not mutually exclusive—for example, for the 80 male patients there are 102 entries in Table IX.

TABLE IX

Domestic Care by	Male Patients (80)			Female Patients (135)		
	Total %	Living Alone (22) No.	With Relatives (58) No.	Total %	Living Alone (76) No.	With Relatives (59) No.
Spouse	41	—	42	10	—	20
Daughter	18	1	18	25	17	33
Daughter-in-law	5	—	5	9·5	7	12
Son	13	1	12	4·5	3	6
Other relative	5	3	2	10	10	10
Neighbours	9	9	—	24	45	3
Patient	5	5	—	9	17	1
Landlady	4	4	—	4	8	—
Home help	—	—	—	4	5	3
	100	23	79	100	112	88

Sharing of Domestic Care

1. *Differences Between Male and Female Patients.*—In 41% of the male cases the housework was being done by the wife and in 18% by the daughter. In only 10% of the female cases the husband did the housework, and the daughter in 25%. Neighbours helped in the housework in 24% of the female and in only 10% of the male cases. Aged women, when they fell ill, more often continued to do the housework themselves than did the aged men.

2. *Comparison of Domestic Care for Patients Living Alone and for Those Living with Relatives.*—Patients living alone received the most inadequate domestic care. For the 22 men the neighbours did most of the housework in the case of nine, and for five the only housework was what the patient himself was able to do. For the 76 female patients living alone the neighbours were helping in 45 cases, and 17 of the patients did the housework themselves in spite of their disabilities. Patients living with relatives had an easier domestic life, the wives of the male and the daughters of the female patients taking the lion's share of the work.

Nursing Care

The partition of nursing care was essentially similar to that of the domestic care, with some differences: (1) A high proportion of the patients living alone (16 of the 22 men and 40 of the 76 women) had no nursing care. Other patients living alone received some nursing, but this was only by day—they seldom had anyone in attendance at night. (2) The neighbours, though they helped with the housework, were rarely able to help in nursing. Usually the sense of responsibility of the other tenants in the house was naturally less than that of relatives. (3) The daughter and other relatives were unable to do as much nursing as they could housework, especially in the case of patients living alone.

Qualitative Aspects.—In several cases the burden of nursing was severe and had fallen on one person for many years. In some instances patients had become unnecessarily bedridden owing to the limited amount of help available in the home. The incontinent could seldom be managed at home for long; a false incontinence developed in some owing to the difficulty of lifting a heavy patient out of bed. Mental confusion was found to be another condition adding to the difficulties in nursing the old at home. Several patients required more skilled nursing than that which relatives and neighbours could provide. Although in the present series the contribution from professional nurses was numerically small (24 cases) it was possible in some, with their aid, to tide the patient over a short illness and thus obviate admission to hospital. Moreover, home nurses were especially useful for such procedures as injecting drugs, the dressing of ulcers and discharging sinuses, and the general care and washing of patients. MacGregor and Benjamin (1950), in an analysis of home-nursing in London, have shown that the increased demand for district nurses in the past few years is largely due to greater numbers of aged and chronic sick being nursed at home because of the shortage of hospital beds.

Further Management of the Patients

As the patients investigated were those whose continued domiciliary care the referring authority considered to be difficult, it is not surprising that 172 of the 215 patients (80%) were admitted to hospital. In 20%, however, continued treatment at home was possible; this represents a considerable saving in hospital beds. Although all the patients admitted suffered from disease, it was not always this that had made their entry to hospital a necessity. The immediate reason was selected after considering the patient's physical and mental condition and assessing his social circumstances. For simplification the illnesses have been tabulated under two headings, short-term and long-term, according to the duration of the illness before the patient was seen.

Short-term Illnesses (68 Cases)

These are here defined as illnesses of less than six weeks in which the patient is nursed at home before admission to hospital is sought. The sudden onset and the severe nature of the disability were important in determining the need for admission, more important than the fact that 36 of the 68 patients (53%) were living alone. Table X shows that there

TABLE X

Nature of Illness	Living with Relatives		Living Alone	
	No.	Average Duration (Days)	No.	Average Duration (Days)
Cerebro-vascular accident	12	18	7	5
Cardiac failure	6	27	11	6
Bronchitis and bronchopneumonia	8	11	11	6
Other illnesses	6		7	

was, however, a difference between the two groups in the duration of symptoms before reference to hospital. This is to be expected; but that many seriously ill patients living alone spent as long as six days in bed before hospital care was sought was due in some cases to the lack of knowledge of their plight.

Long-term Illnesses (104 Cases)

For patients who had been ill at home for longer than six weeks the immediate cause of admission was not always the illness itself, but some related domestic factor. The disabilities of some of the patients living alone had been relatively slight at first, but their general condition had gradually deteriorated, so that they were unable to manage by themselves. Patients who lived with relatives usually had been nursed for some time, but the general practitioner had referred them to hospital when it was realized that the strain on the family—often on one individual—could be borne no longer. The admission was often precipitated

either by a sudden increase in the burden (owing to the development of a complication such as incontinence or mental confusion) or to the family's sudden inability to bear the burden—for example, because of illness or death of a relative.

1. *Progressive Deterioration in Condition (59 Cases).*—Eighteen patients were admitted to hospital because their illnesses had become terminal. Those (7) living alone had naturally remained ambulant as long as possible. Their admission to hospital became imperative once they had taken to bed. Another 10 patients living alone had reached a stage of their illness in which they were unable to continue an independent existence. They were strongly attached to and determined to live in their homes, so they rarely wanted to go into hospital. Thirty-one patients were admitted because the relatives were unable to look after them any longer (for reasons other than illness of the relative). General practitioners had usually referred the patient to hospital because they were cognizant of the severe strain of looking after an old patient—a burden which, apart from its duration, brought with it loss of freedom or of employment, domestic difficulties, and quarrels.

2. *Development of an Acute Incident in a Chronic Illness (22 Cases).*—An acute episode in a chronic illness, or a new acute illness, in 22 chronically ill patients led to their admission to hospital. Examples were such conditions as a urinary infection with incontinence, and severe hemiplegia in patients already suffering from the effects of cerebral vascular disease or of mental confusion.

3. *Illness of the Relative (9 Cases).*—Nine patients were admitted because of illness of the relative on whom they were dependent. Usually the illness did not last long, so that it was possible to discharge the patient home when the relative had recovered.

4. *Squalor and Neglect (14 Cases).*—Fourteen patients, all living alone, were admitted to hospital because as a result of illness they were quite incapable of looking after themselves, and were getting so little help from others that they were in a state of neglect. The medical officer of health or the sanitary inspector had referred 12 out of the 14. In most cases persons living in the same tenement had requested the removal of the patient on the grounds that his presence was insanitary and a nuisance to the rest of the household. In all cases the living conditions were extremely squalid; the rooms were filthy, the furniture was dilapidated and verminous, and the smell was almost unbearable.

The neglect in which these people were was sometimes attributable to their physical state—for example, locomotor disorders confined them to the house. But it was also often due to the patient's mental condition or temperament. Some were mentally confused and disorientated; a few suffered from paranoid delusions and accused neighbours of thieving and other malpractices. More, however, were ultra-independent, so that they resented alleged interference from the neighbours, who, because of this, had given little aid until the patient's plight had become really desperate.

The patients themselves would not ask for medical aid, and indeed when it arrived they did not want to go to hospital. In some cases much persuasion was required on the part of physicians, social workers, the sanitary inspector, and neighbours. In no instance, however, was it necessary to apply to the magistrate's court for authority for compulsory removal.

Admission to hospital of cases of severe neglect rarely results in successful rehabilitation. Five of the patients died soon after admission, two were transferred to mental hospitals, and six as a result of treatment were fit for discharge to a hostel or to the care of friends. In no case was it possible for the patient to return to an independent existence at home, even though his home had been cleaned up.

Patients Not Admitted to Hospital

For 20% of the patients visited continued home care was recommended. Some required only supervision from their general practitioner. Others needed out-patient investigation and treatment, home-helps, district nurses, or "meals on wheels." Four patients were admitted to a hostel instead of to hospital. Brooke (1948) has discussed the services that can be provided in the home, and the place of the out-patient department in the care of the aged sick.

Conclusion

The present domiciliary survey in the Borough of St. Pancras shows that only about one-fifth of the patients referred to hospital for admission were suitable for continued care at home. Yet the aim must be to treat as many patients as possible in their homes, and they should be provided with the greater part of the services they would have received had they been in hospital.

Should hospital treatment be required it must, whenever possible, be a temporary event in the life of an old person. The importance of selecting patients for admission has been stressed by Amulree *et al.* (1951). Home is the proper place for the aged: it is there that their roots are deeply implanted; and in the home are to be found their interests and their place in the family. All these valuable assets vanish if an old person is uprooted and enters hospital, where, after a prolonged stay, a decline in his faculties may take place.

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SURGERY IN OLD AGE

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The purpose of this paper is to summarize the results of a consecutive series of 537 operations performed by us for a variety of surgical diseases in persons over 70 years old. With the certainty of a progressively ageing population, we are presenting this series as an indication of the general results which can be achieved.

There has been only one large recent series of cases published (Carp, 1950), and these dealt with patients over the age of 60. We think that persons of 60 are too young to be considered in the surgery of old age, and that to include them gives unduly optimistic and misleading results. Another series (Ziffren, Zager, and Cullen, 1950) of 227 operations were described in patients over the age of 80. The only recent paper in the British literature (Childs and Mason, 1949) dealing with patients over 70 described only 99 cases—too few, in our estimation, to be of real value.

We are aware that the results described below leave much to be desired, but, as almost all of the cases dealt with had some crippling or lethal disease, the results should be reviewed in the light of those who have been saved rather than those who have died. The series was taken in an ex-municipal hospital which received more than its share of derelict cases, and because of this we are grateful to have had considerable opportunity of practising surgical salvage, often on what is generally believed to be an "inoperable" case. With this in mind we feel that the results are better than is generally supposed, and surgery is frequently rewarding, even in the very poor risk case. The cases were operated on in the years 1945–9 inclusive; one of us was away for nearly two years during this period. We did a total of 4,721 operations in the same period, and about one in nine were on patients over the age of 70. The series does not include six cases with inadequate data.

Analysis of Results

Among the 537 cases were 103 minor operations (cystoscopy, simple biopsy, etc.). Only one patient died after a minor procedure (passage of bougies and insertion of catheter), and this was carried out on a medical patient who was in cardiac failure and had retention of urine. These minor procedures are not discussed further, as they do not constitute a surgical problem.

The remaining 434 cases (339 males, 95 females) which form the subject of this paper all had major surgical operations, 252 as elective and 182 as emergency procedures. The great preponderance of males in the series was due to the large number of prostatic cases. The cases were divided into four groups for analysis: operations for prostatic obstruction, operations for intestinal obstruction, amputations, and other operations. The group of "other operations" included a large variety of major surgical operations (mastectomy, nephrectomy, cholecystectomy, repair of perforated peptic ulcer, gastrectomy, appendicectomy, etc.) and a few lesser procedures such as repair of simple hernia and removal of haemorrhoids. The largest number in any one group occurred in those treated for prostatic obstruction; these accounted for about a quarter of the total cases. The patients' ages varied from 70 to 91. The largest number of operations, 223, occurred in the 70–74 age group (Table I).

TABLE I.—*Age Groups*

Age Groups	Total No.	Deaths
70–74	223	48 (21·5%)
75–79	145	46 (31·7%)
80 and over	66	24 (36·4%)

The anaesthetics used were spinal, inhalational (varying from open ether to the modern mixtures given in a closed circuit and supplemented with thiopentone and curare), and local. An analysis of the types of anaesthetics given, with the total mortality in each group, is recorded in Table II.

TABLE II.—*Anaesthetics Used*

	Prostatic Obstruction	Intestinal Obstruction	Amputations	Other Operations	Total	Deaths
Spinal ..	177	51	11	57	296	76 (25·7%)
Inhalational	4	21	6	68	99	32 (32·3%)
Local ..	7	14	—	18	39	10 (25·6%)

Table III shows the length of stay in hospital of the patients who survived. It will be noticed that a considerable number (45.8%) stayed longer than 28 days. Many of these patients, however, were kept because of non-medical causes, such as waiting for surgical appliances (colostomy belts, etc.) and awaiting transfer to institutions for the aged. No attempt has been made to make allowance for these factors.

TABLE III.—*Length of Stay in Hospital of Surviving Patients*

Length of Stay	No. of Patients in Various Groups				
	Prostatic Obstruction	Intestinal Obstruction	Amputations	Other Operations	Total
1–14 days ..	16	5	—	18	39
15–21 ,, ..	31	14	—	24	69
22–28 ,, ..	28	15	—	20	63
29 days and over	72	20	7	46	145

The mortality figures are recorded in Tables IV and V. All patients who died before discharge from hospital, however long after the operation, are included in the deaths. Of the 434 patients operated on 316 recovered and 118 died (27.2% mortality). Recent papers dealing with patients over the age of 70 give mortality rates of 21.7% (Ziffren, Zager, and Cullen, 1950) and 17% (Childs and Mason, 1949). The latter series consisted of cases in a teaching hospital, and it is likely that the clinical material was better than in the present series. In another paper describing a series of patients over the age of 60 (Cutler, 1950) the mortality rate was 52%.

TABLE IV.—*Mortality According to Groups*

	Prostatic Obstruction	Intestinal Obstruction	Amputations	Other Operations	Total
No. of cases ..	188	86	17	143	434
No. of deaths ..	41	32	10	35	118
Mortality rate ..	21·8%	37·2%	58·8%	24·5%	27·2%

TABLE V.—*Mortality: Emergency and Elective Operations*

	Emergency Operations	Elective Operations	Total
No. of cases	182	252	434
No. of deaths	61	57	118
Mortality rate	33·5%	22·6%	27·2%

Discussion

Prostatic Obstruction

Many of these cases were admitted in very poor condition, often in uraemia and almost always with vascular degenerative disease, and a high proportion (88.8%) had acute retention. In spite of these adverse factors the results of operations for prostatic obstruction were not unencouraging.

The Wilson Hey method of prostatectomy, usually done as an immediate operation, was the procedure of choice. It was not considered to be the best method, however, in patients with severe urinary infection and approaching uraemia, and in patients whose general condition was very poor from any cause. We believe that the Wilson Hey prostatectomy is more formidable than the Freyer, and not every patient will survive it. The Freyer type of prostatectomy in one or two stages was used for most cases that were unsuitable for the Wilson Hey procedure; in the remainder some other form of prostatectomy was used. The numbers of the various types of operation performed for prostatic obstruction are shown in Table VI.

TABLE VI.—*Number of the Various Types of Operation for Prostatic Obstruction*

Wilson Hey	Freyer 1 and 2 Stages	Retropubic	Suprapubic, Diathermy Resection	Permanent Suprapubic	Total
66	94	2	13	13	188

Intestinal Obstruction

The causes of intestinal obstruction were many and varied, and included strangulated internal and external herniae, carcinoma of the colon, gall-stones in the terminal ileum, volvulus, adhesions, and intussusception.

The results of strangulated external hernia were the best of this group (47 cases with 9 deaths), partly owing to the ease of diagnosis in this type of obstruction. Many of these old people, however, did not seek medical aid until the third or fourth day of their illness, and in these the likelihood of gangrene of the bowel was greatly increased, with its attendant very high mortality. It is our policy to invaginate the gangrenous area of the bowel whenever possible. This avoided a resection in several cases, and we did not meet with the complication of a new obstruction occurring at the site of invagination. We have found that surprisingly large areas of gangrenous bowel can be invaginated with impunity.

The results of large-bowel obstruction due to a carcinoma are more gloomy. Again there was often a long delay before the patients sought medical aid; many of them had long-standing constipation, and the supervention of acute obstruction often passed unheeded for a week or so. The results of emergency operations to relieve these large-bowel obstructions were 17 deaths in 27 cases. Of those who survived, two had further procedures to remove the obstructing cause, and all these recovered from the multiple-stage operations.

It is our policy to perform a laparotomy on cases of large-bowel obstruction to determine the exact cause and site of the obstruction and then to relieve it by the simplest surgical means—a colostomy for choice; but occasionally a caecostomy was the only means possible. We believe that it is better to avoid a blind operation for bowel drainage in these patients; in only five cases was a blind procedure done, and all were fatal.

We also believe that entero-anastomosis in acute large-bowel obstruction is not justifiable, and that suture of the dilated and friable bowel almost always leads to peritonitis and death.

The use of gastric suction and fluid and electrolyte-balance measures was necessary as in any case of intestinal obstruction. Intravenous fluid, however, was withheld unless fluid and electrolyte balance could not be restored or maintained by any other means, as we have found that intravenous therapy is not without danger in the aged, mainly because of its tendency to produce pulmonary oedema and to precipitate pneumonia.

Amputations

The results of the amputations are depressing. Minor amputations may be performed as indicated in younger patients, though, as might be expected, healing is much slower. Occasionally amputations below the knee are justifiable, as the mortality is considerably less than in amputations performed at a higher level. However, a vascular lesion in these patients, causing gangrene of even the toes, inevitably requires amputation at a high level to secure enough vascularity and healing of the wound. It is worth adding that in the last two years no tourniquet has been used for these operations.

In this series the mortality was 58.8%. This is not entirely attributable to the operation. It shows that a peripheral vascular catastrophe at this age is often the herald of impending death.

Other Operations

This group includes all other types of operations performed. No attempt has been made to analyse the results of the various operations in this group, as the numbers concerned are too small to be of any significance. Interesting operations in this group included five cases of repair of perforated peptic ulcer (three gastric and two duodenal) and two cases of appendicectomy for acute appendicitis, all of which are rather rare emergencies in old age. Other rare emergencies were one case of torsion of the omentum and one case of spontaneous rupture of the spleen at the site of a cavernous haemangioma. The latter was treated by splenectomy, and is the forty-fifth case of its kind to be recorded (Bostick, 1945).

Diagnosis

This presents many difficulties peculiar to old age. These patients are often not accurate witnesses, and deafness is an added difficulty. The onset of many diseases is a much slower process in the aged, and many symptoms are attributed by the patient to their old age. Complete investigation is not always possible as they do not readily tolerate prolonged radiological or biochemical studies. However, we do not suggest that essential diagnostic procedures are to be omitted on account of age alone. In our experience it has often proved impossible to forecast the true extent of the pathological process before operation. In consequence some of the patients were submitted to surgery when all chance of relief was found at operation to have gone many months earlier. It is in this sort of case that patients were found at operation to have multiple carcinomatous secondary deposits and no useful surgical procedure could be undertaken; these cases are included in the mortality list.

Anaesthesia

As shown in Table II, all three main types of anaesthesia were used. We believe, however, that spinal analgesia has a worthy place in treating these old patients, who tolerate it well, and that it is the method of choice in dealing with intestinal obstruction and for prostatectomy. It was used in all but 11 of the prostate cases. We admit, however, that to use it safely and successfully experience in the technique is essential and its limitations and contraindications must be appreciated. With the continued improvement in general anaesthesia in recent years we have used spinal analgesia less often than formerly. General anaesthesia usually consisted of thiopentone and curare in conjunction with an inhalational anaesthetic in an open or closed circuit. Curare was in regular use even at the beginning of this series, and hence the number of cases submitted to simple open ether was relatively small; it was used in only 11 cases. Local analgesia was used if it was thought that the patient was too ill for any other method. It was not employed as a routine procedure for any type of case, and altogether it was used in only 39 operations—14 of which were for intestinal obstruction, mostly strangulated external herniae.

Early Ambulation

Our patients were not submitted to the whole-hearted regime of early ambulation. A patient gravely ill, or one in the throes of intravenous infusion or bladder drainage, was allowed to remain in bed. Many patients, however, have been got up on the day after operation. Thanks to the efforts of the nursing staff, bedsores were unusual and never caused us anxiety. The diet in the post-operative period may present more problems. To take hospital diets some coaxing may be required; fads are frequent in the aged, and the help of the dietitian may be necessary. Administration of vitamins, especially vitamin C, is beneficial.

Causes of Death

Post-mortem examinations were carried out in 72 of the 118 fatal cases, and in these the cause of death was known for certain. In most of the other cases an accurate assessment of the cause of death was usually possible. In the prostatic cases death was often due to pyelonephritis and uraemia (17 out of the 41 cases). Recently this has been partly controlled with antibiotics, particularly streptomycin and chloramphenicol. Chest complications also accounted for a large number of the deaths (30 of the 118). The precipitation of fatal chest conditions was due to a number of factors—exacerbation of long-standing bronchitis, myocardial insufficiency, and over-enthusiasm with intravenous fluid being the most important.

Another potent cause of death was general deterioration, in which most systems took part. In these cases the opera-

tive procedure proved too much for the patient, although it was the only possible measure. There is no certain way of forecasting the outcome of an operation on a patient on the brink of death, and we have been surprised that some have survived and returned to a normal life. The commoner degenerative diseases—renal failure, vascular degeneration, coronary heart disease, cerebral arteriosclerosis—all combined to bring about the fatal issue in these cases.

As might be expected, there were a number of purely vascular causes of death (cerebral thrombosis two cases, coronary disease four cases, iliac-vein thrombosis one case). These usually occurred suddenly and without warning in a patient whose progress had hitherto been satisfactory.

Conclusion

We believe that even major surgical procedures are often justifiable in old age. It is necessary, however, that one's surgical valour should be tempered with discretion and that the operation should be the minimum consistent with cure or symptomatic relief. A colostomy, for example, may be all that is justifiable in large-bowel obstruction, and sometimes, though less often, permanent suprapubic cystostomy is all that is justifiable in prostatic urinary obstruction. We also believe that unless cure or symptomatic relief is likely to be achieved it is better not to operate. It is unjustifiable and unkind to attempt desperate surgical ventures that would be fitting in younger patients.

A better selection of cases would improve the mortality rate, but as usual the problems of selection are insuperable. It is as important to give relief to all those who would survive the surgical ordeal as to withhold operation from those who would not stand it. With experience we have found that an accurate assessment of the result of surgery can often be made from the general clinical condition of the patient, and this is often the best guide to fitness for operation.

With continued improvement in surgical technique, the use of new antibiotics, further knowledge of the biochemistry of disease, and further improvements in anaesthesia we are looking forward to the time when only patients over 80 will be discussed in the surgery of old age.

Summary

A series of 537 operations were performed on patients over the age of 70, of whom 119 died, giving a total mortality rate of 22.2%.

Of these patients, 434 underwent major operations, and 118 of them died, giving a mortality rate of 27.2%. The causes of death are analysed and discussed.

We believe that surgery in old age is rewarding more often than is generally believed, and we think this will prove even truer in the future.

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Last year at the Conference on Military Medicine, held at Vichy under the auspices of the Office International de Documentation de Médecine Militaire, delegates discussed the problem of the role of medicine in biological warfare. A questionary was sent out, and replies have been received from more than 20 countries. A tentative answer to the problem, reported at the conference held in Brussels last month, is to separate curative medicine from experimental research work. The conference voted in favour of referring the whole question of international medical law to international authorities, particularly W.H.O., in order to clarify the position of doctors in peace and in war. Other questions discussed included the identification of medical and religious personnel in the armed Forces, and the minimum numbers of doctors, nurses, chaplains, etc., essential in prisoner-of-war camps.

PSITTACOSIS IN A FAMILY

BY

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Psittacosis in man was for long regarded as a serious disease with a high mortality rate and as being transmitted by parrots. It has, however, become increasingly recognized that a milder form exists, and the virus has been isolated from other birds, notably pigeons (Andrewes and Mills, 1943), domestic fowl, and fulmar petrels. Frequent references to the milder form have been made by American workers: Brown (1943), quoting a series of 45 cases of atypical pneumonia, stated that the psittacosis virus had been isolated in 10. Cases of this type seem to have been rarely described in this country (Thomson, 1930, 1943). The following two cases occurred in one family.

Case 1

A general labourer aged 16 was admitted as a case of pyelitis on May 15, 1951. He gave a history of general malaise, anorexia, headache, nausea, and severe lower back pain for the previous three days and had fainted on the day of onset. When seen these symptoms were still present, and in addition he complained of pain in the eyes on attempting to read. There was no cough or recent upper respiratory infection.

On examination he was flushed, the tongue coated, and the temperature 102.6° F. (39.2° C.). There were no palpable glands and no renal tenderness. Nothing abnormal was found in the abdomen or in the respiratory, cardiovascular, and nervous systems. The urine was normal on ward testing. This clinical picture suggested the possibility of influenza or virus pneumonia.

Meanwhile, "sulphatriad," 1 g. six-hourly, had been started by the admitting officer, and this was continued until May 18, a total of 11 g. having been given. On that day the patient was still febrile and complained of frontal and occipital headache. Examination then revealed a small area of distant bronchial breathing, bronchophony, and whispering pectoriloquy about 2 in. (5 cm.) below the inferior angle of the left scapula, with some inspiratory rales. An *x*-ray film showed partial consolidation of the left lower zone of "ground glass" appearance. At this stage the diagnosis of virus pneumonia seemed highly probable and Q fever was considered. Chloramphenicol, four capsules (1 g.) thrice daily, was given and the temperature fell to normal within 24 hours, the patient's general condition improving simultaneously. After three days no clinical abnormalities were detected in the lungs and the drug was discontinued (total 11 g.), the temperature remaining normal. An *x*-ray film on May 25 showed partial clearing, and a repeat film on June 14 showed resolution to be complete.

Laboratory Investigations.—Urine (May 16): no pus, blood, or casts in centrifuged specimen. White-cell count (May 17): 8,850 (polymorphs 72%, lymphocytes 23%, monocytes 4%, eosinophils 1%). Serology (May 18): no cold agglutinins detected in the serum. Virus complement-fixation test:

	May 22	June 5
Psittacosis/lymphogranuloma venereum ..	<1 in 10	1 in 160
Influenza A and B	<1 in 16	<1 in 16
Q fever	<1 in 16	<1 in 16
Streptococcus MG	<1 in 10	<1 in 10

Skin tests (June 23): Frei antigen, positive; psittacosis antigen, negative; control, negative.

Case 2

A factory worker aged 43 (the father of Case 1) was admitted on May 30, 1951, giving a five-days history of general malaise, nausea, headache, sweating, and shivering. He also complained of pain in the right lumbar region associated with slight frequency and scalding of micturition; these symptoms led the admitting officer to regard him as possibly suffering from acute pyelitis. Physical examination at this stage was negative except for some vague tenderness in the right lumbar region, the temperature being 99.4° F. (37.4° C.), and the urine containing no abnormalities on ward testing.

He was given 2 g. of sulphatriad at once and then 1 g. six-hourly. The next day he was still complaining of headache but had no urinary symptoms. By June 1 the morning temperature had risen to 101° F. (38.3° C.) with deterioration in his general condition. Examination revealed a small area of persistent crepitations in the left axilla. In view of his son's recent illness the question of virus pneumonia (possibly Q fever) was seriously considered, but sulphonamide therapy was continued. A chest *x*-ray film at this stage revealed left mid-zone consolidation, but absence of cough or other respiratory symptoms was noteworthy. On June 3 the temperature was normal, although crepitations were still audible in the left axillary region. By June 8 the chest was clinically clear, sulphatriad was discontinued (total 39 g.), and the patient allowed up. A chest *x*-ray film on June 4 showed clear lung fields.

Laboratory Investigations—Urine (May 31): Nothing abnormal on chemical testing or in deposit; culture sterile. White-cell count (May 31): 11,300; the pathologist reported that the film showed slight polymorphonuclear leucocytosis. Serology (June 2): Cold agglutinins detectable in patient's serum to titre of 1 in 4 (negative). Virus complement-fixation test:

	June 5	June 23
Psittacosis/lymphogranuloma venereum ..	<1 in 10	1 in 80
Influenza A and B	<1 in 16	<1 in 16
Q fever	<1 in 16	<1 in 16
Streptococcus MG	<1 in 10	<1 in 10

Skin tests (July 26): Frei antigen, negative; psittacosis antigen, negative; control, negative.

Discussion

The complement-fixation tests leave no doubt that these patients were suffering from psittacosis, for, as Smadel (1943) has pointed out, a rising titre of antibody is essential for the diagnosis, and this was obtained. In Case 1 the titre rose from less than 1 in 10 to 1 in 160, and in Case 2 from less than 1 in 10 to 1 in 80, the antibody response to other agents remaining constant over the same period. The viruses of psittacosis and lymphogranuloma venereum are related antigenically; this explains the positive Frei test in Case 1. The negative skin reactions to psittacosis antigen do not vitiate the diagnosis in view of the other evidence. Inquiries were made for possible sources of infection, and it was disclosed that both patients had been in recent and frequent contact with domestic pigeons kept by a relative. Furthermore, two weeks before the onset of the son's illness it had been noticed that one of the birds was sick. Although proof that the pigeons were the immediate source of infection has not been obtained, this is a reasonable assumption. It is therefore worth re-emphasizing that in cases of obscure pyrexia, especially those associated with minimal pneumonic signs, inquiry for contact with birds should not be confined to those of the psittacine group, but should be extended to include domestic pigeons.

From the clinical point of view the absence of cough and sputum throughout the course of the illnesses was noteworthy; thus without careful attention to the chest the possibility of virus pneumonia might not have been considered and the condition might have been overlooked. This complete absence of respiratory symptoms is unlike both the psittacine form of the disease (Sturdee and Scott, 1930) and atypical pneumonia of other cause, the latter usually being accompanied by a "distressing unproductive cough" (Coope, 1948), but no inferences need be drawn from these features.

In their work with experimental animals Hurst *et al.* (1950) showed the psittacosis virus to be sensitive to terramycin, aureomycin, chloramphenicol, and penicillin in that order; sulphonamides are known to have little or no effect. It is not easy to be certain when spontaneous remission occurs or when recovery results from treatment, but in Case 1 sulphonamides had had no effect on the temperature or general course of the illness for 72 hours, whereas the administration of chloramphenicol was associated with much general improvement and a fall in temperature within 24 hours. In our view this was probably not fortuitous but a specific effect of the antibiotic. Case 2, which was treated with sulphonamides alone, showed an increase of temperature over the first 48 hours, with deterioration of the general condition followed by a gradual decrease of temperature, but the normal was not attained until the fifth day of administration (total 18 g.), by which time he was symptomless. It is questionable whether sulphonamides accelerated his recovery or merely acted prophylactically against possible secondary invaders. However, it would be unwise to draw conclusions from the experience of two cases, and we simply record our impressions.

Summary

Psittacosis of a milder type is reported as occurring in a father and son, the disease being contracted from contact with presumed infected domestic pigeons. Absence of respiratory symptoms was an unusual feature. Chloramphenicol administered to one of the patients appeared to have an immediate beneficial effect. It is re-emphasized that in the diagnosis of virus pneumonia it is important to inquire whether there has been contact with birds other than those of the psittacine group.

Our thanks are due to Dr. J. C. Brundret for the pathology reports and to the Virus Reference Laboratory, Colindale, London, for the complement-fixation tests and the provision of the antigens for skin testing.

ADDENDUM.—Since submitting this article proof of psittacosis infection amongst the pigeons has been obtained. Samples of blood taken from three adult pigeons chosen at random from the stock were submitted for complement-fixation tests against psittacosis/lymphogranuloma venereum. This proved negative at a dilution of less than 1 in 10 in two of the samples, but the third was positive at 1 in 40.

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The general condition of schoolchildren remains satisfactory, says Dr. J. F. Galloway, Wolverhampton school medical officer, in his annual report. There were 25,750 pupils on the school register, and one medical officer to 8,583 pupils, one nurse to 3,218 pupils, and 6,163 pupils per dental operator. He states that 42.3% of the pupils had school meals during the year and 83.2% school milk. Clothing, he says, was generally satisfactory, but what was not satisfactory was that about 8.6% of all children, mostly girls, at some time during the year showed signs of infestation in their hair. It was difficult to improve matters, since the nurses had so much to do.

SYMPTOMLESS CARRIERS IN HOME CONTACTS IN SONNE DYSENTERY

BY

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The presence of symptomless carriers in outbreaks of Sonne dysentery has either been suspected or demonstrated by numerous workers (Charles and Warren, 1929; Laws, 1936; Bloch, 1938; Manson-Bahr, 1943), but I have been unable to trace any report on their incidence in large-scale outbreaks within the general population of a town. The present investigation was made during an epidemic of Sonne dysentery which originated in an infant school in Oxford in January–March, 1951, when an attempt was made to find out: (1) the number of symptomless carriers among the home contacts; (2) whether immediate exclusion of all siblings from school would limit the spread of the outbreak to other schools; and (3) whether the density of infection within any household was related to the standard of cleanliness of that household.

Details of the Outbreak

In January, 1951, shortly after the beginning of term, an outbreak of Sonne dysentery occurred in an infant school in Oxford. During the remainder of this school term the spread of the epidemic was investigated. The same health visitor was employed full-time to visit the school and homes of those affected, and she tried to persuade all home contacts to send their stools for bacteriological examination.

The siblings of a case were immediately excluded from school; this was the only direct preventive measure taken. Exclusion continued until all clinical evidence of infection had ceased in the household and the sibling himself had negative stools. In all cases the ruling of no symptoms plus one negative stool examination was adopted as "a cure." It was realized that this was a very low bacteriological standard on which to assess recovery, but it was accepted as the most practical one, and the results do not suggest that it led to any spread of infection.

There were 74 primary cases, all occurring in school-children, and these had 293 home contacts. At least one stool examination was obtained from 234 of these home contacts (130 adults and 104 children); the 59 home contacts not examined included 56 adults and 3 children.

Home Contacts.—The results of the stool examinations of home contacts (see Table) show that 38 (16.3%) of those examined later became clinical cases, 78 (33.3%) were symptomless carriers, and 118 (50.4%) had negative stools.

234 Home Contacts Whose Stools were Examined

Ages	Clinical Cases	Symptomless Carriers	No Symptoms. Stools Negative	Total Contacts
Adults:				
Male	4 } (10%)	12 } (26·9%)	34 } (63·1%)	50 } (100%)
Female ..	9	23	48	80
Children:				
8–15 years ..	7 (13·8%)	19 (37·2%)	25 (49·0%)	51 (100%)
0–7 ,, ..	18 (33·9%)	24 (45·3%)	11 (20·8%)	53 (100%)
Total ..	38 (16·3%)	78 (33·3%)	118 (50·4%)	234 (100%)

It is interesting that the number of symptomless carriers is double the number of clinical cases in the home contacts. The younger the age group the greater the proportion of home contacts who became either cases or symptomless carriers, and the difference noted between the adult and the 0–7 age group is statistically significant. Among the home contacts were 59 school-children, all of whom were excluded from school and their stools examined. Of these children, 15 (25.4%) later developed a clinical attack of dysentery which was confirmed bacteriologically, 23 (39%) were found to be symptomless carriers, and 21 (35.6%) had no symptoms. These figures emphasize the high level of infection present among the siblings.

Spread within the Schools.—Of the primary cases, 47 (63.5%) came from the infant school in which the outbreak started; the remaining 27 attended 10 other schools, but all had either a history of personal contact with a case from the infant school or else lived near by. The infected siblings of the primary cases included children from seven additional schools, so that altogether 18 different schools contained cases or symptomless carriers. Marked spread within a school occurred only in the infant school originally attacked, and then only in two nursery classes, where spread of infection must have occurred between children within the classroom, as this was the only meeting-place for some of those who developed dysentery. In all other cases the home rather than the school appeared to be the place of infection.

Density of Infection and Cleanliness of Home

As regards density of infection, the following classification was used:

(1) Families in which all members were found to have stools positive for *Shigella sonnei* 11 (15.1%)
(2) Families in which more than half the members were found to have stools positive for *Shigella sonnei* 28 (38.3%)
(3) Families in which less than half the members were found to have stools positive for *Shigella sonnei* 34 (46.6%)

In devising cleanliness categories all the homes were classified by the same health visitor, in the hope that the human error in this difficult classification would be reduced to a minimum. Four cleanliness categories were used, and results were compared both between the distribution of them within the sample as a whole and within the three density-of-infection groups mentioned above. The numbers were small, but analysis showed no connexion between the density of infection and cleanliness of the home: the disease was not more prevalent in dirty homes than in clean homes.

Discussion

The finding that in addition to the 16.3% of home contacts who developed a clinical attack of dysentery 33.3% became symptomless carriers shows that infection within the home was widespread, and suggests that, if symptomless carriers are a real danger, preventive measures might reasonably be mainly directed against spread of infection by them. An assessment of this danger can be made in adults, as no preventive measures were imposed on them (except for two persons working in the food trade) other than by stressing the importance of personal cleanliness. The subsequent absence of any general spread of Sonne dysentery in Oxford suggested that those adult symptomless carriers were of little or no danger to the community.

In the case of young children the problem is different, as with them there is a greater tendency for direct person-to-person infection to take place. The spread of infection in the epidemic described seemed to be mainly within the home, and it was only when a heavy density of infection was reached that the schoolroom appeared to play any prominent part. These findings suggest that immediate exclusion from school of all siblings of cases is a reasonable routine preventive measure, and the only one necessary.

Summary

An outbreak of Sonne dysentery which occurred in Oxford from January to March, 1951, is briefly described. Exclusion from school of siblings of cases was the only direct preventive measure adopted.

The results of examining bacteriologically the stools of 234 home contacts are given: 78 (33.3%) were found to be symptomless carriers.

Spread of infection within the schools is described. Apart from the original infant school affected, direct spread within the classroom did not appear to have been the usual mode. The home played a greater part in spreading infection.

Results did not suggest that the density of infection was greater in dirty than in clean homes.

I thank Dr. J. F. Warin, medical officer of health, City of Oxford, for much help and advice during the investigation, and for criticism of this report. My thanks are also due to the staff of the Public Health Laboratory, Oxford, who carried out the bacteriological examinations.

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AN OUTBREAK OF TRYPANOSOMIASIS

BY

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In December, 1948, a male African was admitted to the Native Hospital, Kisumu, in the Nyanza Province of Kenya, complaining of fever, headache, and general malaise. His temperature was 102° F. (38.9° C.), and in the posterior triangle of the neck several glands were enlarged to about the size of a hazel-nut. On examination of a blood slide I saw what appeared to be typical trypanosomes. The man was a railway employee from Kibigori, a village some 20 miles to the east of Kisumu. With the exception of three days in August, 1948, when he had returned to his home some 50 miles to the west of Kisumu, where sleeping sickness was known to exist, he had been continuously resident in Kibigori for nine years.

Although human trypanosomiasis was not known to exist at Kibigori, the tsetse fly *Glossina palpalis* was present along the whole course of the Nyando River, on which Kibigori stands, and its tributaries, from a point about 15 miles east of Kisumu. The Nyando River is about 75 miles long and enters Lake Victoria near Kisumu.

The Veterinary Department was at the time making a tsetse fly survey of the area in connexion with trypanosomiasis in cattle. Because of this case and the presence of *G. palpalis* at Kibigori, it was decided to investigate the area for further cases of human trypanosomiasis.

Present Investigation

The initial investigation was made on the station platform at Kibigori. Africans in the vicinity were persuaded to come to the station, where they were examined for the presence of enlarged axillary or cervical glands. When enlarged glands were found they were punctured and the gland fluid was examined under the microscope for trypanosomes. In this way some 15 cases were discovered in about a week. It became evident, therefore, that it would be necessary to extend the investigation over the whole area of the Nyando basin; this included two native reserves, European- and Indian-owned farms, and some newly established gold mines.

The investigating team consisted of two African laboratory attendants, an African dresser, and myself. The co-operation of the local chiefs in the native reserves was readily obtained, and with their assistance their people were persuaded to come to prearranged points for examination. The position as regards the examination of African farm labour was more difficult. It was necessary to address several farmers' meetings in order to explain the purpose of the investigation and to obtain their co-operation so that their native labour would come forward in sufficient numbers and at such times as to make the investigation practicable. A prearranged schedule was arranged with the farmers' representatives, and the team went from farm to farm examining the units of labour on each.

In all cases the method of examination and diagnosis was by palpation of cervical and axillary glands, gland puncture, and examination of the gland fluid directly under the ⅛-in. (4-mm.) objective of the microscope. The trypanosomes were recognized by their movement. This was found to be the simplest and quickest method, although it became tiring if a large number of enlarged glands were found. While the gland puncture was being done a blood slide was taken, numbered, and later examined—usually in the evenings. Staining a smear from the glands was one of the other methods tried, but this was found to take too long and to be too difficult to carry out in the dusty places where it was necessary to work. Lumbar puncture for C.S.F. cell counts and Pandy's test was also carried out, but the difficulties of doing this in the field, and in particular the adverse propaganda which it provided, soon ruled it out as a diagnostic measure.

At the beginning of the survey, if a patient was found with a positive blood, a sample of the blood was taken and injected intraperitoneally into a rat. In the laboratory the trypanosome was found to cause chronic infection in white rats, with short stumpy forms in the peripheral blood. These blood samples were discontinued after the trypanosome had been propagated in the laboratory. In each positive case the patient was questioned closely about his symptoms, which were often described with a characteristic vagueness. Some complained of no symptoms whatsoever, whilst others complained of many symptoms—lassitude, fever, headache, loss of appetite, vague skeletal pains, and general malaise. Most of them, however, had only transient attacks of fever and malaise. On general examination about one-third showed moderately severe enlargement of the spleen. This could not be considered unusual in an area where malaria was hyperendemic. About one-quarter of the cases showed some rise in temperature, and at least one-half had some form of rash, usually scabies.

In an area such as this, where many tropical diseases—malaria, bilharziasis, worm infestation, etc.—were endemic, no great reliance could be placed on ordinary signs and symptoms to form a single diagnosis. The character of the axillary glands, and especially the posterior cervical glands, was the most distinctive point. These glands had a characteristic rubbery consistency; they were single, were about the size of a hazel-nut, were mobile, and could be grasped between the fingers and thumb. After a little experience diagnosis could almost be made by the character of the glands alone, but confirmation was always made by gland puncture and demonstration of the trypanosome under the microscope. A few cases were found which gave a negative gland puncture but showed a positive blood film. These people were traced and told to report for treatment.

As a result of taking careful histories and obtaining details regarding movements with such accuracy as it was possible to obtain from Africans, it became evident that the main focus of infection was an area around Kibigori, with a small isolated subsidiary focus some 15 miles away.

Treatment

Treatment of cases was started at once, and throughout the survey weekly sessions of treatment were held every Tuesday at Kibigori, Tuesday being market day. As each

case was diagnosed 0.5 g. of "antrypol" was given intravenously and the patient told to report for treatment at Kibigori on the Tuesday following. After the initial dose, weekly injections of 1 g. were given up to a total of 9.5 g. for the adult male, and proportionate doses for women and children. It was hoped to follow this course of antrypol with a course of tryparsamide, but the adverse propaganda effect of telling people they were required to attend for a further six weeks was so great that it was decided to rely on the antrypol alone. Little trouble was experienced in getting the Africans to attend for their first three or four injections, but after that, as their symptoms cleared up, it became increasingly difficult to persuade them to complete the course of treatment. This problem was not made any easier by the attitude of certain employers who withheld rations and pay on the days the employees attended for treatment. All cases living far from Kibigori were persuaded to come as in-patients at the Native Hospital, Kisumu.

Results

The investigation was completed just after the rains started in the middle of April, by which time all the farms had been visited as well as the native reserve areas. We examined 362 Europeans and Asians, and 11,533 Africans; 549 of the latter were suspect clinically and were further tested, with the results shown in the table.

	No. Found Positive			Total
	By Gland Only	By Gland and Blood	By Blood Only	
African males ..	73	6	4	83
,, females ..	46	2	—	48
,, children ..	27	—	—	27
Total ..	146	8	4	158

After the end of the rains a brief re-survey was carried out at Kibigori and at Songhor, the European farming district adjacent to Kibigori. Bush clearing had already begun at Kibigori, but reports from the Tsetse Control personnel seemed to show that the rains had tended to increase and spread the fly in certain areas. This re-survey showed that the disease was still active in the Kibigori area, and indicated the possible existence of a new small focus of infection. The figures for the re-survey were:

No. of Africans examined	1,893
No. of gland punctures done	81
No. of cases of trypanosomiasis found	43

The distribution of all the cases found was as follows:

Kibigori	134
Central Nyanza Reserve	24
Nandi Reserve	6
Farm areas	37

At the end of their course of treatment all cases were re-examined. Patients were regarded as cured if their glands had disappeared, or were fibrosed and negative on puncture, and if they also had a negative blood slide. Of the 201 cases of trypanosomiasis, 105 were treated and cured at Kibigori, and 18 at the Native Hospital, Kisumu; 6 patients died during their course of treatment, probably owing to intercurrent infection. Of the remaining 72 cases, 51 were defaulters after receiving anything from one to six injections, whilst the remainder were still under treatment when I handed over the control of treatment and investigations, which had by then become standardized.

Comment

During the course of the survey, through conversation with some of the very old Africans, the fact came to light that Kibigori had been the centre of a serious epidemic of human trypanosomiasis before the 1914–18 war. Owing to the suppressive measures taken before 1914 or to unknown natural factors, the disease had completely died out between that epidemic and the present outbreak, although the tsetse fly had apparently remained throughout the entire district. The fly had apparently not been reinfected in spite of much movement of people through the area from regions where sleeping sickness was, and still is, endemic.

Although there was continual movement of the local population within the area itself, especially to and from Kibigori, which is the hub of the district, the fly in the Nyando basin seemed to be infected in only two places, Kibigori itself and at a small site some 15 miles away.

Nearly all cases seemed to be at an early stage. In no instance were glands found which exceeded the size of a hazel-nut. In only two cases was there any suggestion of involvement of the nervous system, and this consisted merely in some marked lethargy and some debility without any definite neurological signs. Both these cases were treated at the Native Hospital, Kisumu; they showed much improvement with antrypol; and after tryparsamide a complete cure resulted, both clinically and from examination of the C.S.F.

Trypanosomes were seldom found in the blood when gland puncture was positive, and even when found were few in number. This, combined with the result of the tests on rats, seemed to show that the infection was caused by *Trypanosoma gambiense*.

No cases were found in Europeans or Asians. The youngest African patient was about 6 years old. Compared with the numbers examined there was a higher proportion of cases among women than among men, perhaps because women went more often to the river to draw water.

With one exception there was no severe reaction to antrypol. The first case of all was over-treated, receiving 10 g. in less than five weeks. A severe exfoliative dermatitis and an acute nephritis developed, but subsequently a complete recovery was made. One case also developed an antecubital cellulitis following an injection of antrypol; recovery followed the application of moist heat.

I am indebted to the Honorary Director of Medical Services, Kenya, for his help and encouragement, and to Dr. W. W. Wilkinson, lately S.M.O., Kenya, for his most valuable advice during the survey.

DIAGNOSIS OF HUMAN TRYPANOSOMIASIS

BY

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While Cates and McIlroy (1951) showed clinical alertness in suspecting trypanosomiasis in a rather atypical case seen in England, their article indicates that routine methods of laboratory diagnosis are not well known there. Details of the methods developed over a number of years by the Gold Coast medical field units might therefore be of use to home practitioners. These units include mobile teams who examine entire populations and fixed centres at which cases attend. Cases found by the mobile teams are usually less advanced than those who come to the centres.

Blood Films

Trypanosomes may or may not be found at any stage of the disease. About 33% of the cases diagnosed by the mobile teams are found positive in one thick drop, but only 16% of those who attend at the fixed centres. Trypanosomes are most easily found in fresh blood examined with a 1/6-in. (4-mm.) objective; but if this method is inconvenient a thick film stained with 1:10 Giemsa for twenty minutes and examined with the oil-immersion objective will show them. It is best to begin at one corner and work through the entire film line by line on the mechanical stage.

Gland Puncture

Gland puncture was first described by Greig and Gray (1904). Our technique is based on instruction given us by Dr. A. MacPherson, a pupil of one of the original authors, and by the late Colonel E. Jamot, of the French Service. The clearest published account is that by McGowan (1951).

Needles should be of fairly wide bore or they will be blocked up, and should be short to facilitate manipulation; a convenient size is a bore of 0.8 mm. and length of 2.5 cm. Platino-iridium needles can be sterilized in the flame, but are so apt to break off at the joint that we find it more convenient to use steel ones. If the needles are boiled they must be dried before use, as water kills trypanosomes. To dry the needle, put it on a dry syringe with the piston withdrawn, blow out, take off the needle, draw piston back, blow out, and repeat until dry. Blow the stream of air against the face to ensure that it feels dry.

Do not sterilize the hands, but avoid touching the shank of the needle. Select a suitable gland. It is usually easier to find trypanosomes in the lower cervical glands than the higher, probably because the latter are more liable to sepsis from the head, and sepsis appears to be antagonistic to trypanosomes (MacPherson). Paint the area with iodine. Hold the needle by the butt. With the needle at about 45 degrees to the skin, aim at the thickest part of the gland, and try to get the point of the needle in the middle of it. Move the needle a little to see that the gland moves with it, and move the gland a little to see that the needle moves with it. Rotate the needle on its axis, push it a little further, then withdraw it a little (suction is not needed), and pull it out quickly. Apply iodine to the puncture. Fix the needle on the syringe with the piston withdrawn, and squirt on to a clean dry slide. With the needle move to one side the fragment of skin which is usually in the fluid. Apply cover-glass. Press the cover-glass gently to spread fluid.

Examine under the 1/6-in. (4-mm.) objective with the light partially cut down. The fluid consists of lymphocytes suspended in a clear medium. Sometimes red cells are present. If fat is present it may mean that the gland has been missed, but it is worth while examining the specimen, as there may be gland juice containing trypanosomes as well. Work through the entire specimen line by line on the mechanical stage. The appearance of the trypanosome "is very dramatic, and never fails to produce a thrill of discovery. It behaves like a tiny hooked trout kicking and thrashing among the lymph cells" (McGowan).

Blood Centrifugation

Our method is as near as we could get to that of Broden (1920), the modification being due to our having the simple two-speed hand centrifuge, whereas Broden's was of a different type. We proceed thus:

Take into a 10-ml. syringe 1 ml. of 6% sodium citrate in 0.9% saline. Fill the syringe with blood from a vein. Centrifuge for ten minutes on the low gear of the two-speed centrifuge. This brings the red cells down as a sediment, on the surface of which the leucocytes form a grey layer. Pipette off supernatant fluid into another tube. Examine the leucocyte layer and the first sediment for trypanosomes; occasionally trypanosomes come down in these (about 4% in leucocyte layer and 11% in first sediment). Re-spin supernatant on the high-speed gear for ten minutes, and pipette it off into a third tube. Examine the second sediment, which occasionally reveals trypanosomes (in 16% of cases). Spin the supernatant on high gear for twenty minutes. The third sediment often has trypanosomes (39% of cases). By his original method Broden found 80% of cases positive: we have found about 70% of all cases positive, but only about 3% of those negative by blood film and by gland puncture.

We have not had access to an electric centrifuge. Sicé (1937) states that centrifugation at high speed on the electric centrifuge reduces the motility of trypanosomes. He advises that the speed be gradually increased, and should not exceed 3,000 revolutions a minute; after four to five minutes at that speed the supernatant should be centrifuged at 3,000 revolutions for 10 minutes and the sediment examined.

Animal Inoculation

This procedure sometimes reveals trypanosomes when other methods fail. In the Gold Coast we have found that the best animals for the purpose are the green *Cercopithecus* monkey and the pouched rat, *Cricetomys gambianus*—common here, but possibly hard to obtain in Europe. The cat and the dog are next; direct passage from man to a small rat or a guinea-pig succeeds only occasionally.

The blood of the animal should be examined for trypanosomes before the inoculation if there is any possibility of its having a natural infection; *Trypanosoma lewisi* occurs in rats everywhere. When the animal becomes positive a thin film should be examined to see that the trypanosome is of the *gambiense* type, and not *T. lewisi*.

When inoculating blood into an animal it is well to have an anticoagulant in the syringe, in case there should be any delay. We use about 10 ml. of the citrated mixture for a monkey, cat, or dog; 3–6 ml. for cricetomys; and 1 ml. for a small rat. The animal is held obliquely with head downwards and belly upwards, the skin picked up, and injection made into the peritoneal cavity at the base of the raised fold. The interval between inoculation and the appearance of trypanosomes in the peripheral blood of the animal varies from 6 to 49 days.

Kligler and Weitzman (1924) found that in experimental animals inoculated with trypanosomes a relapse could be produced by the intraperitoneal injection of olive oil. Comparative observations, too few in number to be conclusive, suggested that this method helped to establish the parasites inoculated from human cases (Saunders, 1930). The oil can be injected either before or after the blood; two days before is probably the best time.

Cerebrospinal Fluid

Trypanosomes.—Castellani and Chalmers (1919) state that centrifugation of 10 ml. of cerebrospinal fluid for 15 minutes nearly always shows trypanosomes in the sleeping stage; but Broden (1920) found them in only 4.5% of cases. We have found them in 0.15% of cases, but we centrifuge only about 4 ml. of the fluid. They are occasionally found in the fluid without centrifugation.

Cells.—A diagnosis of trypanosomiasis on a cell count alone, without finding the parasite, must be regarded as somewhat questionable. But, taking into account the difficulty of demonstrating trypanosomes in some proved cases, we and the French and Nigerian workers with whom we have discussed this consider that one is justified in treating as a case of trypanosomiasis a patient from an endemic area with suggestive symptoms who has a high cell count not otherwise explained: I would, very tentatively, put the limit here at about 30 cells. I do not think a diagnosis of trypanosomiasis is justified on a cell count of 15 or 20; I have kept under observation for some years a case with such a slightly abnormal count, and have found that the condition subsided without treatment. The chief value of the cell count is for the diagnosis, not of trypanosomiasis, but of the state of the patient's nervous system, which is from the point of view of treatment of equal importance. A definite diagnosis cannot be made on the type of cell present. The morula cell of Mott is suggestive; but, as Stefanopoulo *et al.* (1944) point out, it may occur in other conditions. In the discussion on their paper Lavier pointed out that other cells may occur in the fluid which can be distinguished from Mott's cells only by special staining.

Protein.—The use of protein estimation to diagnose trypanosomiasis is open to the same objections as the cell count; but it is of great importance in the diagnosis of the

condition of the nervous system. It is important to specify the method used in estimating protein, as the normal varies considerably with the different methods. After a series of parallel tests carried out with the help of pathologists of the R.A.M.C. (Hill, 1948), we decided that the Sicard-Cantelouble method is the best for the purpose, as it gives a more accurate figure in the range of greatest importance—that just above the normal.

Adhesion Test

The test is based on the power possessed by the blood of infected animals to make trypanosomes of the same type sticky, so that platelets or blood cells adhere to them. In an endemic area we found that 91% of proved cases gave some degree of adhesion in this test, while 75% of negative controls gave none. Taking the strength of the reaction into consideration, we found that only 3% of the controls gave ++++−− or stronger, and only 11% ++−−−− or stronger. The positive cases included some very early ones, and the negative controls included a few suspicious cases in which trypanosomes were not demonstrated. We found some evidence which suggested that the false positives might be due to tsetse injecting trypanosomes which were not numerous or vigorous enough to maintain themselves (Saunders, 1931).

Our technique was slightly modified from that of Johnson and Lester (1929). Blood from an infected animal, containing preferably 20–30 trypanosomes per field under 1/6-in. (4-mm.) objective, is taken into an equal volume of citrated saline and centrifuged slowly for five minutes. The supernatant suspension of trypanosomes is pipetted off. The plasma to be tested is prepared in the same way, or serum can be used. At first we set up the test in tubes, using equal volumes of the suspension and of the fluid being tested; later we found that two drops mixed on a slide gave the same results, and that incubation was not needed. A positive result is shown by platelets or blood cells sticking to the trypanosomes. In recording results we used the method of writing 1 to 5 crosses, as Johnson and Lester did, according to the number of trypanosomes seen with platelets or cells stuck to them.

Weak strains which do not produce numerous trypanosomes in infected animals were found to be unreliable for the test. In Nigeria starting or relapsing strains gave much the same result; in the Gold Coast our results were entirely erratic with relapsing strains.

Other Methods

Nelis (1944) and Fain (1944) found trypanosomes by sternal puncture when blood and glands were negative; but we have not found this method of value in the Gold Coast. Auto-agglutination of red cells certainly occurs in trypanosomiasis—but also without trypanosomes. We have not succeeded in getting clear results with the formol-gel test, possibly because we have not used carefully standardized tubes. The sedimentation rate will probably prove of value in studying the progress of the disease (Hollins and Lewis-Faning, 1947), but it is hardly of diagnostic value.

General Procedures

When we suspect trypanosomiasis we take a blood film, do a gland puncture, centrifuge the blood, and inoculate an animal in succession, and then carry out lumbar puncture. If necessary, the blood film is repeated daily. It is better to take the blood while the patient has fever. Dr. H. Bermingham, of Kumasi, diagnosed a case by taking blood films at hourly intervals over twenty-four hours. The gland puncture and centrifugation are repeated, if necessary, at intervals of a few days. Lumbar puncture is sometimes repeated, after a month because a case in which fluid is usually abnormal may have normal intervals (Barlovatz, 1934; Van Slype, 1935).

Summary

The simple routine laboratory methods used by the Gold Coast medical field units in the diagnosis of trypanosomiasis are described in detail.

I am grateful to the Director of Medical Services, Dr. R. L. Cheverton, for permission to publish this article.

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Medical Memoranda

Two Unusual Cases of Intraperitoneal Foreign Bodies

Cases of peritoneal foreign bodies are reported from time to time in the literature. The following two patients were treated at the Cardiff Royal Infirmary recently.

CASE 1

A man aged 64 was seen in the out-patient department in January, 1949, and admitted a few days later. Six weeks previously he had first had pain in the right lower abdomen. This had been of gradual onset, but within 48 hours had become severe enough to cause him to cease work. It was severe for a period of four to five days, during which he was constipated. When he had his bowels opened at the end of this time the pain gradually lessened. Since then he had constantly been aware of "soreness," with occasional painful exacerbations. During the initial attack he had noticed a swelling in the right iliac fossa at the site of the pain. This had, he thought, decreased in size as the pain diminished, but since then it had remained constant. Except at the onset of the illness, his appetite had been normal and his bowels regular. There were no other symptoms or any past history of significance.

He was an obese man whose general condition was good apart from chronic bronchitis. There was no evidence of anaemia or any enlarged lymph nodes. His tongue was clean and moist. There was a fairly well defined, slightly tender swelling in the right iliac fossa measuring 6 by 8 cm. It appeared to be involving the abdominal wall and moved with it on respiration. With the abdominal wall relaxed the swelling was mobile. No other abnormality was found in the abdomen or on rectal examination.

During the week after admission the patient had evening pyrexia of 99–100° F. (37.2–37.8° C.) on three or four occasions. Blood count and stool examination were normal. A barium enema showed a filling defect proximal to the hepatic flexure which was suggestive of a neoplasm.

He was thought to have an appendix abscess or possibly a carcinoma of the caecum. A laparotomy was performed 10 days after admission. The caecum, ascending colon, and appendix were normal. The palpable mass was found to consist of oedematous indurated omentum adherent to the anterior abdominal wall. On freeing the omentum from the abdominal wall the latter was felt to contain a craggy

indurated mass thought to be due to chronic oedema. The omental swelling was about 10 cm. in diameter and appeared to be of a chronic inflammatory nature. The cause of the lesion remained obscure until, on exploring the omental mass, a sliver of bone was found buried in it near that aspect of the mass which had been apposed to the abdominal wall. There was no pus present. The bone was removed and the abdomen closed.

The bone was found to be about 3 cm. long, with a diameter of 3–4 mm. at its middle; it tapered to points at both ends.

The patient has remained well since. He had no knowledge of having swallowed the foreign body, which is believed to be a fragment of rabbit bone.

CASE 2

A man aged 41 was admitted as an emergency case in August, 1950, complaining of severe hypogastric pain. One week before admission he started to have abdominal discomfort. Four days before admission this had become worse, especially before and during micturition. He had had frequency of micturition for two days. A few hours before admission he had a sudden urgent desire to micturate, but had been unable to do so. This was followed by severe lower abdominal colic and rigors, which caused him to come to hospital. Up till then he had not vomited, but after admission he brought up a little bile-stained fluid. His bowel habits had been regular. He had been working until the day of admission. There was no antecedent history of significance.

When examined he was in severe pain. He had a pyrexia of 101° F. (38.3° C.) and a pulse rate of 100. His tongue was heavily furred. There were signs of lower abdominal peritonitis. Tenderness was slightly more marked on the left than on the right. No mass was identified, but rigidity made deep palpation impossible. On rectal examination there was pronounced tenderness in the recto-vesical pouch but no palpable mass. The urine was normal.

The abdomen was opened by a right lower paramedian incision a few hours after admission. There was lower abdominal peritonitis. The cause of this was rupture of a small abscess around the pelvic colon. Omentum and bladder as well as colon were involved in the inflammatory mass. Bladder and colon were separated from the mass without difficulty, and no lesion of either viscus was found. The lesion appeared to originate in the omentum, as in Case 1. A purposive search was now made for a foreign body, and one was found in an abscess cavity in the omentum containing a few millilitres of pus. The foreign body was removed and the abdomen closed.

The patient made an uneventful recovery. He had no recollection of having swallowed the foreign body, which is believed to be rabbit bone. The histologists were unable to identify it with certainty. The piece of bone was 2¼ cm. long and sharp at both ends. Its middle was flattened and 2–3 mm. wide.

COMMENT

Some idea of the frequency of such perforation of the bowel may be gained from Perslow's (1935) finding of seven such cases among 225 patients admitted to hospital having swallowed foreign bodies. These cases occurred among 320,000 admissions to seven large Swedish hospitals over a 20-year period. Each of Perslow's seven patients came with peritonitis.

The first case recorded above is unusual in that it presented as a chronic lesion. It is assumed that the bowel through which the bone had passed was the caecum. Rather surprisingly, this is a common site for perforation to occur in, although no part of the alimentary tract is exempt.

At operation the striking fact about both of the above cases was that the omentum appeared to be the centre of the lesion. Even in the relatively acute Case 2 the walls of the pelvic colon and bladder seemed to be only secondarily involved. There was no trace of the site of perforation, although this was searched for in the neighbouring colon. This omental protection was commented on in a paper by Watson (1915), who remarked that it occurs in many cases before the actual perforation. He gives no evidence for this statement, but the comparative mildness of the early symptoms in the present cases suggests rapid localization of the inflammation after perforation.

It is probable that the mechanism of perforation in these two patients was that a sharp end of the bone first pricked the mucosa of the intestine and stuck. The resulting irritation set up inflammation in the overlying visceral peritoneum and caused adhesion of omentum to the site. The oedematous area of bowel stimulated vigorous peristalsis, which, since it failed to dislodge the bone, brought about complete perforation of the bowel and completed the extrusion of the foreign body from the gut. The omentum was already in position to "take up" the extruded foreign body and localize the peritonitis. In Case 1 the protective process was completely successful, and no doubt the bone would eventually have found its way through the abdominal wall.

In Case 2 it is assumed that involvement of the bladder in the "walling off" mechanism resulted in a breakdown of the defences when the bladder contracted violently in an effort to empty itself. The severe pain of general lower abdominal peritonitis came on when the patient was trying to micturate, about a week after his first abdominal symptom.

I wish to thank Mr. J. B. Haycraft for permission to publish details of these two cases.

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Subacute Inversion of the Uterus Treated with Aveling's Repositor

Acute inversion of the uterus is uncommon, and it is impossible for anyone to gain very much experience in the management of these cases. The following case presented itself as a subacute complete inversion of the uterus. It was first seen and diagnosed some 66 hours after delivery. The division between acute and subacute cases has been used previously (Ocejo, 1947).

CASE REPORT

A primigravida aged 19 had a normal delivery of a living female child weighing 7 lb. 12 oz. (3.5 kg.) at 8 p.m. on October 22, 1949. The third stage was prolonged and a post-partum haemorrhage occurred. The patient's doctor was called by the midwife, and the placenta was expressed by Credé's method. The patient became very collapsed after this manœuvre and, at the request of the doctor, blood was taken to the house and a transfusion of 2 pints (1.14 litres) was given. The patient's general condition improved. The loss was normal and the blood pressure was also within normal limits. Approximately an hour later the loss became excessive and the patient's condition again deteriorated. She was admitted to hospital.

On admission the pulse rate was 110 a minute and the blood pressure 90/50. Loss was not excessive. She was given "omnopon," ¼ gr. (22 mg.), and ergometrine, 0.5 mg. A further 2 pints (1.14 litres) of blood was given. She responded satisfactorily to this treatment. The following morning her general condition was fairly satisfactory. Lochia were noted as being rather heavier than normal.

On October 24 her temperature was 100° F. (37.8° C.) and pulse 106. A course of penicillin, 50,000 units intramuscularly three-hourly, and sulphadimidine, 2 g. and 1 g. four-hourly, was begun.

I first saw the patient on October 25. Her temperature was 101° F. (38.3° C.) and pulse 110. She appeared pale and ill. Lochia were excessive. Slight lower abdominal tenderness was present. A mass could be felt which was regarded as the fundus of the uterus. Arrangements were made for examination under anaesthesia. At that time it was thought that there were probably some retained products. Haemoglobin was 56% (Haldane). A further transfusion was begun, and after premedication with omnopon, ½ gr. (22 mg.), and scopolamine, 1/150 gr. (0.43 mg.), the patient was anaesthetized with thiopentone and cyclopropane. Examination showed a completely inverted uterus. The cervix could be felt through the vaginal fornices. It was tightly constricted. An attempt was made to replace the uterus manually without success. Continuous recording of the blood pressure and pulse rate by the anaesthetist during this attempt showed little or no deterioration of the patient's general condition. The patient was returned to bed. The foot of the bed was raised and the transfusion continued until a further 2 pints (1.14 litres) of blood had run in. Hot saline douches were given in an attempt to reduce the loss. This was effective.

On October 28 her general condition was much improved. Her temperature was now normal, and she was breast-feeding satisfactorily. On November 11 the haemoglobin was 75%. Vaginal examination revealed a uterus involuting well but still completely inverted.

The Aveling repositor arrived on November 20 and was fitted. The patient complained of only a little discomfort. A small dose of pethidine was necessary on the first night. The tapes needed frequent adjustment to maintain satisfactory tension and to prevent the stem of the repositor pressing on the perineal edge or anteriorly beneath the urethra. I had no idea how long the repositor might take to effect replacement, but it was decided to examine the patient again in six days' time. It was then found (November 26) that the uterus was in normal position and the head of the repositor was firmly held inside the uterine cavity and the cervix closely applied to the stem of the instrument. It was obvious, then, that more frequent examinations should have been made. This point is stressed by Spencer (1920). The patient was returned to bed with a 1-lb. (450-g.) weight attached to the repositor. Next day the traction weight was increased to 2 lb. (900 g.), but the original weight was soon substituted, as the heavier one gave rise to considerable lower abdominal discomfort. On the morning of November 28 the repositor head was in the vagina, and was removed. Bimanual examination and with a uterine sound showed a normal uterus. Lochia were slight and white only.

The patient was allowed up the next day. The haemoglobin was now 80%. The infant was fully breast-fed and weighed 8 lb. 8 oz. (3.9 kg.). The patient was discharged home on December 3.

She was seen in the post-natal clinic on December 13, when the findings were completely normal.

COMMENT

In acute cases of inversion of the uterus seen within minutes to several hours after the occurrence of the inversion, digital replacement can usually be done, but, if not, the assistance of hydraulic pressure may succeed (O'Sullivan, 1945).

If these methods fail or the case is not diagnosed in the early stages the problems are markedly increased. Some of these patients will not improve until replacement has been effected, and even if the patient is successfully brought through this stage of shock the local changes in the birth canal add to the difficulties of reposition. Oedema of the uterus occurs and a constriction ring is prone to form (Berkeley, Bonney, and MacLeod, 1938). In these later cases the following lines of treatment must be considered.

1. Manual reposition should be attempted first. Naturally there is a greater chance of success with this method if the inversion is incomplete, thereby allowing counter-traction on the cervix. This is well brought out in the three cases described by Henderson and Alles (1948). Burwig (1944) thinks that the type of anaesthetic has an important bearing on the success or otherwise of delayed manual reposition. He favours a spinal anaesthetic together with cyclopropane.

2. If manual reposition fails operative intervention is advocated by some authors. Munro Kerr and Chassar Moir (1949) review the literature and, although quoting successes with more conservative methods, suggest that surgical treatment should be given an extended trial in this country. The most impressive work published on the surgical treatment of inversion is that of Huntingdon, Irving, and Kellogg (1928) and Irving and Kellogg (1931). They advocate early abdominal operation for the replacement of the uterus. A case successfully treated on these lines has been recently reported in this country by Bigby, Greeves, and Kinch (1948).

3. The principal alternative to operative treatment is the use of a repositor described by Aveling (1886). There have been many reports of its successful use. Spencer (1920) had successes, and describes many of the practical points in its use. McCullagh (1925) gave an account of 29 cases treated with the repositor with no deaths. It should be remembered that many of these cases were treated before antibiotics and sulphonamides were available.

4. Lastly, there is a definite group of cases in which spontaneous reposition occurs. Vartan (1944) brings out this point and quotes eight cases in which this occurred. Berkeley (1915) even suggested that the uterus be left alone deliberately with this in view.

I would like to record my thanks to Dr. Douglas Wilson for his administration of the anaesthetic and the recordings at that time, and to the nursing staff of the Maternity Hospital, Luton, for their excellent co-operation in the management of the case.

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A short article in *Nature*, July 19 (p. 110), describes the curious behaviour of the bower birds, relations from Australia and New Guinea of the birds of paradise, but lacking the resplendent plumage of these well-known birds. The astounding fact is that during the breeding season the male birds build tiny ceremonial houses, which they decorate in various ways. Some even paint their houses inside—they mix charcoal or fruit pulp with a secretion from their mouths and apply this paint, with a wad of fibre from some soft bark as a brush. These houses are not nests, but sexual amusement parlours. The male chooses his territory, carefully clears it of all forest litter, and in some species makes his bower by arranging rows of parallel sticks in the ground, the long axis of the "building" being north and south, with a clear display area at the north entrance. Coloured leaves, flowers, berries, coloured bits of broken glass, and tram tickets are laid out carefully every morning on the display area, and put away again at the end of the day, or tidied up first thing next morning. There is a system in the arrangement, and the objects are usually blue, or, if not, lemon-yellow or greyish-brown. Once put out, the objects appear to be sexually interesting, since the male bird will disregard the female but move about the bower displaying to one of the objects by erecting his feathers and making characteristic movements. The selective value of this avian fetishism is discussed.

Reviews

HEALTH ACROSS FRONTIERS

International Health Organizations and Their Work. By Neville M. Goodman, M.D., F.R.C.P., D.P.H. Foreword by Sir Wilson Jameson, G.B.E., K.C.B., M.D., F.R.C.P., D.P.H. (Pp. 327; 53 illustrations. £1 15s.) London: J. and A. Churchill. 1952.

Epidemic diseases know no frontiers, and a hundred years ago, irrespective of political relations, their prevention was a matter of concern to the various nations. Several international conferences were held from 1851 onwards to stop the great epidemic visitations of cholera and plague (particularly those in the Levant) and to minimize the danger of their spread through the Mediterranean to the countries of Western Europe. In the initiation and organization of these conferences Great Britain, the pioneer in public health, naturally took a leading part.

The first Sanitary Convention emerged as a result of an international conference in Venice in 1892, and subsequent Conventions were those of Paris in 1903, 1912, and 1926. Important landmarks in this history were the setting up of the Sanitary Maritime and Quarantine Board of Egypt and of the Office International d'Hygiène Publique with its secretariat in Paris in 1907. The Office, like the former Constantinople Superior Board of Health, whose functions it absorbed in 1927, did much to prevent the spread of cholera by pilgrims from all over the Mohammedan world to the holy places of Arabia. It also supplied epidemiological data and information to the fifty countries of the world signatory to the International Sanitary Convention of 1926, and secured international agreement on many problems of disease.

In the New World co-ordination of information on epidemic diseases and their control was initiated at the beginning of the century, when the Pan-American Sanitary Bureau was created by an International American Conference in 1901, and organized by the First Pan-American Sanitary Conference in 1902. Its work was closely associated with that of the Paris Office, and its able Director from 1920 to 1946 was Surgeon-General Hugh S. Cumming.

After the first world war disease was widespread in many parts of the Continent, and particularly in Eastern Europe, where typhus fever threatened to spread. Through the League of Nations National Council in May, 1920, the Epidemic Commission was formed, and its team of international experts successfully built up a system of health defence and control. This was the first example of collective action on an international basis in the campaign against epidemic disease.

The Health Organization of the League of Nations began in 1921, and its constitution was finally adopted by the fourth Assembly of the League in 1924. Its medical director was Dr. L. Rajchman (Poland). Its health committee represented the chief national health administrations, including that of the United States; the technical staff included several experts of the Epidemic Commission. Although the League of Nations failed to assure the peace of the world, its Health Organization's work was conspicuously successful. It established close relations between the health services of different countries, acted as a clearing-house for all information on public health questions, and helped to secure agreement for international action in public health affairs. The Health Organization owed much to Sir George Buchanan, the British delegate to the Paris Office and all International Sanitary Conferences during 1919–35, who recorded some of its work in his Milroy Lectures in 1934; to Dr. M. T. Morgan, British delegate from 1936; to Professor T. Madsen, President of the Health Committee, 1921–37; to Professor J. Parisot, President, 1937–47; and to many others.

When the second world war ended there were three world-wide inter-governmental organizations concerned with international health work. The most active was the United Nations Relief and Rehabilitation Administration. Its health work was analogous to that of the Epidemic Commission after the first world war. Though its duration was brief, its labours controlled European epidemics, averted famine, and supplied a temporary pressing need. The oldest organization was the Paris Office, and there was the residue of the Health Organization of the League of Nations. Finally, in July, 1946, a World Health Conference was held in New York, as a result of which the World Health Organization was constituted and established. This absorbed or integrated the work of previously existing international health organizations. Its objective is the attainment by all peoples of the highest possible level of health.

Such in outline is the subject of this important book. Dr. Goodman's distinguished record well qualifies him to be the historian of international health organizations and their work. Here he might well say, *Quorum pars magna fui.* The book has a foreword by Sir Wilson Jameson and is well produced and illustrated.

ARTHUR S. MACNALTY.

THE HEART IN PREGNANCY

Heart Disease in Pregnancy. By A. Morgan Jones, M.Sc., M.B., F.R.C.P. With foreword by Professor Crighton Bramwell, M.D., F.R.C.P. (Pp. 53; illustrated. 6s.) London: Harvey and Blythe. 1951.

In 53 pages Dr. Morgan Jones has been able to condense almost everthing of value that has been written about heart disease and pregnancy, and flavours it with his own experience of 352 carefully followed cases. He describes the physiological changes in cardiovascular function due to pregnancy itself, and the symptoms and physical signs that accompany them. He points out that when heart disease complicates pregnancy it is rheumatic in 90% of cases. His views on management are orthodox, but may have to be changed in the light of results achieved by means of valvotomy. He does not underestimate the danger of pulmonary oedema in moderately severe cases of mitral stenosis, nor does he gloss over the permanent deterioration that is sometimes initiated by a "successful" pregnancy.

General practitioners, consultant physicians, and obstetricians will find this a helpful and instructive little book, more informative than certain more ambitious works.

PAUL WOOD.

EVOLUTION OF EVOLUTION

Historical Aspects of Organic Evolution. By Philip G. Fothergill, B.Sc., Ph.D. Foreword by J. W. Heslop Harrison, D.Sc., F.R.S., F.R.S.Ed. (Pp. 427. £1 15s.) London: Hollis and Carter. 1952.

As stated in the introduction, this book is "offered to intelligent laymen interested in evolutionary biology, to teachers of various kinds, to students and to the professional biological public in the hope that it may help them to form a balanced opinion on the subject of 'Evolution.'" It differs from other recent books on evolution in that the author discusses the "evolution of evolution." A book with this outlook is bound to be interesting, more especially if written in such a way that the various schools of thought receive consideration appropriate to their importance.

The book has two main sections. The first treats of the development of evolutionary ideas up to the beginning of this century; in the second part the first two chapters concern the rise of genetics and the cytogenetic aspects of evolution. The last two chapters are on some modern causal theories of evolution and modern Neo-Darwinism.

Pre-Mendelian ideas of evolution are presented reasonably well. The dust of conflict over the Darwinian theory of the evolution of species by natural selection has long ago subsided, and the hackles of ecclesiastics no longer rise at the very mention of the name of Darwin. But the second half of the book is less satisfactory and merits serious criticism. It should be noted that modern discussions of evolution centre on the proposition that evolution has mainly taken place by gene substitution on a background of cytological events. There are well-known standard works embodying these

discussions in great detail by Fisher, Haldane, Huxley, Dobzhansky, Simpson, and others. Nowhere in the book do we find a detailed and reasoned exposition of the views of these authors, especially where they come into conflict with the opinions of the Neo-Lamarckian school. It is true that their names are mentioned (except Simpson's), and nothing in fact could be fairer than the bibliography, which is excellent up to 1940.

Unlike the reviewer, the author attributes much importance to the researches of Heslop-Harrison, Kammerer, McDougal, and others on the inheritance of acquired characters. The reader would not gather that the scientific world thinks very little of most of this work, which is presented in great and suspiciously loaded detail. Finally, it should be emphasized that no treatment of evolution can be considered complete without a survey of the genetics of interspecific differences, which this book does not contain.

S. C. HARLAND.

BLOOD CLOTTING

Blood Clotting and Allied Problems. Transactions of the Fourth Conference, January 22 and 23, 1951, New York. Edited by Joseph E. Flynn. (Pp. 272; 81 figures. $4.00.) New York: Josiah Macy, Jr., Foundation. 1951.

For the past four years the Josiah Macy, Jr., Foundation has brought together a group of specialists from appropriate disciplines to discuss, in an informal manner, the difficult and controversial aspects of new work on blood clotting and its allied problems. Since the number of persons invited to the conference is small, the discussions can be more intimate and comprehensive than could be achieved before a large audience. Fortunately, however, the large audience is reached by the publication of verbatim reports of the papers and the subsequent interplay of discussion on them.

This volume covers methods for direct investigation of factors leading to thrombosis, canine haemophilia, blood platelets, antithrombin and α-tocopherol, and fibrinogen-fibrin reactions. The discussion is both considerable and pertinent, since only people actively engaged in research along parallel lines and thoroughly conversant with the subject take part. Because this report is of the spoken word it is easy to read, but the underlying significance in clinical medicine of some of the recent findings is difficult to see. This is essentially a publication for the haematologist and biochemist, who will find it stimulating. Its mode of presentation and the large bibliography of current papers make it particularly valuable to those working in these fields.

H. PAYLING WRIGHT.

RELIGION AND PSYCHOTHERAPY

Nervous Disorders and Religion. A Study of Souls in the Making. Tate Lectures to Manchester College, Oxford, 1947. By John G. McKenzie, M.A., B.D., D.D. (Aberdeen). (Pp. 184. 9s. 6d.) London: George Allen and Unwin. 1951.

The Individual and his Religion. A Psychological Interpretation. Based on the Lowell Lectures. By Gordon W. Allport. (Pp. 164. 12s. 6d.) London: Constable. 1951.

In the last hundred years general medicine and surgery have made their stupendous advances, compared to previous centuries, by agreeing to discard metaphysical and philosophical approaches to treatment in favour of mechanistic ones. This also made religion uncertain about its proper healing role *vis-à-vis* a new and increasingly successful mechanized medicine. Psychiatry has recently been trying to fill some of the obvious treatment gaps created, possibly overemphasizing the importance of psychosomatic factors in disease. But this has given religion fresh heart. If Freudian beliefs and practice, for instance, can help relieve illness, why not religion also with its centuries of added practical experience? We are now, in fact, seeing the emergence of methods of religious healing which steal some of the modern psychotherapist's thunder.

As an example, Professor McKenzie's book emphasizes the need of many persons to come to grips with their real and often subconscious conflicts by psychotherapy before seeking a solution of them in religious practices. In American parlance, it might be said that restful hours on the analytic couch should precede the strenuous exercises of the gospel tent. As a lay psychotherapist, the author reports helping patients with severe obsessional phobias by a probing of the subconscious, but says relapse is likely if a satisfying religious ethic is not also acquired. Much careful thought has been given to means of combining both approaches, which makes this book an interesting contribution to a problem in urgent need of clarification.

Professor Allport's book studies the psychological need of the human mind for religion. Examination of soldiers after battle experience showed them to be "praying animals" whatever their normal religious attitudes. Fear of the future often better dispelled by religion, is contrasted with psychology's present preoccupation with past experiences as the cause of nervous illness. Certainly, too much psycho-analysis may produce an almost permanent state of backward introspection in some patients rather than future hopefulness, and may be responsible for sudden switches to authoritarian religion.

The relief of guilt feelings is discussed in both books. But here, in the reviewer's opinion, mechanics and metaphysics become increasingly interwoven because of the success of E.C.T. or leucotomy in relieving overwhelming guilt and "scruples" after religion and psychotherapy have failed absolutely in some patients. This aspect of a complicated problem has to be faced by those discussing such topics, but Professor McKenzie avoids the issue in saying he has not seen good results in his patients from such mechanistic treatments of the mind.

These books show the need for better integration of all proved methods of spiritual and physical healing. Various disciplines have much to learn one from the other. Whatever treatment is used, these authors remind us rightly that man is happiest and least neurotic with a satisfying religious ethic to guide him and in living for others rather than himself.

WILLIAM SARGANT.

NERVOUS SYSTEM MATURATION

Genetic Neurology. Problems of the Development, Growth, and Regeneration of the Nervous System and its Functions. Conference sponsored by the International Union of Biological Sciences, subsidized by Unesco. Edited by Paul Weiss. (Pp. 239. £1 17s. 6d.) Chicago: University of Chicago Press. London: Cambridge University Press. 1951.

This book, in spite of its name, is not about hereditary factors in neurological disease. In March, 1949, an international conference was held in Chicago under the auspices of Unesco on the development, growth and regeneration of the nervous system, and a new "scientific discipline," genetic neurology, was founded at the conference. This volume contains a series of essays written by members of the conference, not apparently papers read there but composed after the meetings.

Genetic neurology is the science of all processes involved in the maturation of the nervous system and draws its material from several of the basic sciences. The authors are from various countries; among the 20 contributors J. Z. Young, of London, writes on the determination of the specific characteristics of nerve fibres; J. Boeke, of Utrecht, on nerve regeneration; H. Hyden, of Goteborg, on spectroscopic studies on nerve cells in development, growth, and function; F. O. Schmitt, of Boston, on the colloidal organization of the nerve fibre; and D. H. Barron, of Yale, on genetic neurology and the behaviour problem. It is disputable whether the subject justifies the description of a new scientific discipline, but the essayists discuss problems at times neglected in books on neuro-anatomy and neurophysiology. The book should be of considerable interest to workers in those subjects and of somewhat less interest to clinicians.

J. W. ALDREN TURNER.

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THE TRAINING OF RESEARCH WORKERS

The work of the Medical Research Council is probably relatively easy in the matter of recognition and support of established investigators. In addition to this task, however, it has taken on some responsibility, shared with the universities, for seeking out, guiding, and developing research talent in the young. The report[1] just published contains a review of the past results of such endeavour, together with some changes in outlook which are clearly aimed at increasing the strength of clinical research in this country.

The remarkable success of the Council in its choice of Rockefeller travelling fellows is shown by a study of their subsequent careers, which shows that 88% of fellows remain in teaching or research appointments, 30% occupying university chairs. In 1944 the Council started a scheme for training postgraduate students in research methods. Of 221 studentships, most were held by science graduates, mainly chemists, and only 26 were medically qualified. It was obviously important to remedy this imbalance by creating other opportunities which would attract men with knowledge and experience in medical science and its direct clinical application in the wards. For this purpose a scheme of clinical research fellowships was launched last year. While a science graduate is often ready to begin laboratory work about the age of 24, a medical graduate liable for military service may be 28 or 30 before he has gained the necessary practical experience to fit him for laboratory training in clinical research. The salaries of clinical research fellows have therefore been set at the registrar level. It is hoped that our future clinical investigators will take advantage of the opportunities thus offered to acquire the techniques and disciplines of the basic sciences for application to bedside problems. All will wish the new scheme every success. The Council may be relied on to exercise its special responsibilities with the utmost care, and those authorities concerned with other aspects of medical planning will surely assist in the fruition of this laudable venture.

[1] *Report of the Medical Research Council for the Year 1950-1*, H.M.S.O., London. (This report is summarized on p. 211.)

A budding clinical investigator may be trained either in a department of recognized standing, already engaged in clinical research, or in a basic science department providing methods relevant to his clinical interest. The former will be for the most part the clinical units of the universities or of the Medical Research Council. Such units are growing in number, staffing, and prestige in this country. On the other hand, a young clinician interested in, say, diabetes might profit greatly from a year or more in a biochemical department with a special interest in carbohydrate metabolism. Whatever the place of study, it is essential that the clinical investigator should not lose his position in a clinical department, and the Council has insisted on a promise from the sponsor of an appointment at the end of the training period. Such promises are not always easy to give. Sometimes the trainee may still be regarded as a gamble, while in the Health Service nobody has at present the power to make such binding promises to graduates at the trainee level. It would clearly be wasteful if successfully developed talent in clinical research were to be lost, and some way must be found of ensuring that clinical investigators of promise can continue to expand their special skills and contribute their knowledge as members of hospital staffs. Some may return to the ordinary consultant ranks; others may find places in university units, but, exceptionally, new clinical research posts may have to be created.

A broad-minded outlook on medicine and an elastic staffing system are necessary to foster the development of the originality and mental resources of our educated youth. To allow the development of scientific medicine it is to be hoped that the Ministry of Health and the Royal Colleges will not be too rigid in their schemes for the training and recognition of specialists. The cardiologists of the turn of the century might not have regarded Mackenzie's unorthodox training and experience as adequate for specialist recognition. Most would probably now appreciate that experience in endocrinology and biochemistry may be better for a future rheumatologist than years in a physiotherapy department. We never know from what direction the next significant advance in medicine is likely to come. Great intellectual tolerance is required to allow the growth of variety in methods of approach to clinical problems, and a rigid system of specialist training might be fatal to our prestige in scientific medicine.

Artistic genius and scientific genius have much in common. Unless they are sympathetically tended in their early growth they can wilt and wither away. Bernard Shaw, as a mellowing octogenarian, wrote of

the difficulties of catering for the development of the arts in a planned society. The mood of the 1880s had not been prepared to receive his own peculiar talent, and but for family support he might have been starved out any time up to the age of 40. If the late nineteenth century could not appreciate Shaw we may be in no better case with regard to recognition and sustenance of comparable genius in the mid-twentieth century. Genius cannot be conjured into existence by planning, and it does not flourish readily if hedged in by bureaucratic regulations. For this reason we should appreciate the wisdom of the late Lord Addison in putting the Medical Research Council outside the direct control of an executive Government department, which is appropriately acknowledged in the Council's report.

The Council has enjoyed a freedom to initiate, encourage, and sustain promising work in any branch of medical or allied biological endeavour. This freedom of research combined with trust in the wise advice of the Council's members exists in no other country and is, in fact, the envy of medical scientists the world over. To support and extend the Council's efforts to foster clinical research should be the privilege of all who are concerned with medical education and with the development of the Health Service.

CANCER IN LONDON

Until much more is known about the natural history of cancer the cure of the disease will continue to provide a rich field for exploitation, not only by the unscrupulous charlatan but also by the misguided enthusiast. Occasionally the steady progress of the disease will be interrupted, the symptoms and signs will regress and even, very rarely, disappear. In our present state of ignorance of the frequency with which this "natural cure" occurs and in the absence of an effective form of treatment for patients in whom the primary growth has metastasized, it is not surprising that remedies which have no scientific basis continue to be used and continue to be credited with cures.

The survey of cancer in London undertaken by the British Empire Cancer Campaign[1] provides, among much else, useful new evidence relating to the natural history of cancer. Colonel W. L. Harnett, who was in charge of the investigation, is to be congratulated on producing a document which should be a useful work of reference for many years to come. The survey was carried out in 1938 and 1939, when it was brought to an end by the outbreak of war. Special case sheets, applicable to the various organs of the body, were prepared, and all the voluntary and L.C.C. hospitals and most of the special hospitals in the County of London undertook to complete sheets for every case of cancer seen, whether the patient was admitted to hospital or not. By September, 1939, 15,201 cases had been registered. Despite the disorganization caused by the war, it was possible to follow up the great majority of the patients, and with the co-operation of the General Register Office the state of 97.4% of the patients was determined five or more years from the date of their registration.

The primary object of the survey was to obtain information about the efficiency of the various methods of treatment which were in use. Owing to the successful follow-up the figures obtained for the proportion of five-year survivors must be considered highly accurate. The figures are presented in great detail for each site, for the stages of development of the growths at the time of treatment, and for the types of treatment used. Where adequate numbers have been treated by different methods, comparisons have been made of the results obtained. Thus, for eight body sites the survival rates were slightly higher when radical surgery was combined with radiotherapy than when surgery was used alone, and in five out of six body sites the survival rate was higher with radical surgery than with radiotherapy. The differences, however, were small and were statistically significant only for cancer of the ovary in the first group and for cancer of the glottis and of the cervix uteri in the second. For all sites the five-year survival rate with radical surgery was 36.5% and with palliative surgery it was 4.3%. By contrast, only 46 (i.e., 1.4%) of 3,260 patients who were untreated survived for more than five years. In 19 of the survivors in this last group the growths were found to be still present after five years, but in many of the others, in which biopsies had not been done, the diagnoses were subsequently considered to be incorrect.

Save for the observation that a number of growths will, even if untreated, persist for five years without necessarily killing the patient, these figures cannot be accepted altogether at their face value. Survival rates are largely dependent on the stage of development of the growths at the time at which they are treated and on the presence or otherwise of "aggressive characters" in the growths (a subject which we discussed in a recent leading article[2]), and it cannot be assumed that all the treatment groups were similar in these respects at the

[1] *Survey of Cancer in London*. 1952. London.
[2] *British Medical Journal*, 1952, 1, 1119.
[3] Stocks, P., *Cancer Registration in England and Wales*, Studies on Medical and Population Subjects, No. 3, 1950, H.M.S.O., London.
[4] Cutler, S. J., *Cancer Illness among Residents in Atlanta, Georgia*, Cancer Morbidity Series, No. 1, 1950, Federal Security Agency, Public Health Service, Bethesda, U.S.A.
[5] *Epidem. vital Statist. Rep.*, 1952, 5, 1

outset. In fact, the patients with cancer of the cervix who were treated with radiotherapy included a proportion with more advanced disease than was amenable to radical surgery, and when the separate results obtained at each stage of the disease were compared no differences in the results obtained with the different treatments could be detected. Whether the technique of a large survey is suitable for determining the relative values of different forms of treatment, or indeed of any treatment at all, is open to doubt; more definite conclusions might perhaps have been reached had it been possible to conduct a controlled trial over a more limited field.

The survey was not confined to the determination of survival rates: evidence was also collected about possible aetiological factors, presenting symptoms, and the reasons for delay in attending hospital. Incompleteness of the returns and lack of suitable standards for comparison make it difficult to assess the significance of some of the information obtained (for instance, about heredity), but there are many indications for more detailed research. Analysis of the length of time elapsing after the onset of symptoms and before a doctor was consulted shows that there is plenty of room for improvement: over 30% of patients with cancer of the thyroid, lip, salivary glands, anus, breast, corpus uteri, vulva, and skin delayed for more than six months. On the other hand, results of treatment were generally better for cancer in these sites where the symptoms were less urgent, presumably because the disease progresses more slowly.

When a doctor was consulted the patient was referred to hospital without delay three times out of four: 7% of the patients were treated symptomatically for periods of up to three months before reference, and 15% were treated symptomatically for longer periods. Only 2% of the patients were told that the condition was not serious. The proportions, however, varied according to the site of the growth: for example, nearly half the patients with cancer of the stomach were treated expectantly before reference to a hospital, while only 10% of patients with cancer of the breast were so treated. Greater awareness of the possibility of cancer as the cause of minor symptoms would doubtless have reduced the numbers not referred for investigation, but until facilities for investigation are more readily at hand for the general practitioner it can hardly be expected that all cases should be discovered at the first consultation. While the general practitioner has to make an appointment for the patient to see a specialist, who himself makes another appointment for a barium meal and who sees the patient again the week following the *x*-ray examination (all of which may take a month or six weeks to complete), it is not surprising if the practitioner treats an apparently straightforward case of epigastric pain for a few weeks before subjecting the patient to the process of investigation.

The findings of this survey for a number of the more important sites of cancer have been published previously in the annual reports of the British Empire Cancer Campaign from 1942 to 1950, and their value must have been a factor in encouraging the Registrar-General's Office to institute the system of cancer registration which now covers over half the cases occurring in the country.[3] There is, however, still a long way to go before we can record any survey in this country which is as complete as the surveys of illness caused by cancer carried out in ten cities in the United States in 1937 and again in 1947.[4] The primary value of complete surveys which can be accurately related to the populations from which the patients are drawn is that they provide evidence of any changes in incidence that may occur, and enable the incidence in different sections of the community to be compared. Morbidity surveys, when complete, are of greater value in this respect than mortality records, since the latter are influenced by changes in the effectiveness of treatment. Nevertheless, mortality statistics provide some comparisons of great interest, as is illustrated by the report on cancer mortality in Europe issued by W.H.O.[5] The conclusions reached are that the changes which have been observed in England and Wales are paralleled by similar changes in nearly every European country, as well as in Australasia and America. For example, the mortality from cancer of the buccal cavity, pharynx, and skin has either remained stationary or decreased, while a rapid increase has taken place, though to a variable extent in different countries, in the mortality rates attributed to cancer of the respiratory system. Among women the most notable changes have been a general increase in cancer of the breast, while the death rates from cancer of the uterus have remained steady. Unfortunately it is just those countries lacking reliable mortality statistics which provide the greatest contrasts in environment and might be expected to show the greatest differences in cancer incidence and hence clues to aetiology. Now that the Registrar-General has accepted the responsibility for determining the pattern of cancer morbidity in England and Wales, as well as that for mortality, it is to be hoped that the British Empire Cancer Campaign will pioneer in a new field and essay a study of cancer morbidity in the more difficult zones of Africa and Asia.

FUTURE OF THE PUBLIC HEALTH SERVICE

The future of the public health service has been much in the minds of medical officers of health since the National Health Service Act was passed, and pessimistic and optimistic forecasts have been put forward in about equal proportion. At the meeting of the Section of Social Medicine and Occupational Health in Dublin (see page 215) Professor Leslie Banks had some stimulating and occasionally startling suggestions to make on this subject. In his paper he pointed out that the health services of local authorities, which had been in existence only a relatively short time, have had to shoulder an extraordinary variety of burdens. Even so, their success has been so remarkable that "by 1950 the pattern of disease which the local sanitary authority had been set up to meet no longer existed." To support this statement Professor Banks quoted evidence from Sir Allen Daley's last annual report. During the year 1950 there were no deaths in London from smallpox, only 4 from scarlet fever, 4 from diphtheria, and 3 from typhoid. Furthermore, an infant mortality rate of 26 per 1,000 live births and a maternal mortality rate of 0.7 per 1,000 births (London figures) show that the years of endeavour in the public health service have at last borne fruit.

Professor Banks thinks that the medical profession made a fundamental mistake in not immediately recognizing the importance of some of the new public health services, and of course he is quite right. It was partly owing to the disinterest of the clinicians that the school medical, maternity and child welfare, and tuberculosis services were organized on a full-time basis by local authorities. But the coming of the National Health Service Act has renewed the opportunity to bring prevention and treatment together. Professor Banks said that the distinction between these two branches of medicine was no longer tenable and that prevention, diagnosis, treatment, and aftercare formed one continuous process. If the medical officer of health were now to be given the full support of his clinical colleagues he could get down to the very necessary and long-overdue work of co-ordinating the local health services. As a first step Professor Banks suggested that "he should be given an honorary contract on the staff of the local group of hospitals as a home-care physician. It would then be his duty to ensure that all existing resources—and they are many—are used to prevent disease arising in the individual, to encourage the medical care of patients in their own homes, and above all to ensure that the chronic sick do not block valuable hospital beds." If medical officers of health could be brought into the team of clinical workers in some such way as is suggested by Professor Banks, this would go far to bridge the gap which has so unfortunately divided the preventive and curative services.

The part of Professor Banks's paper that was most widely quoted in the lay press was on the subject of the maternity and child welfare services. He suggested that these services have now achieved the purpose for which they were set up—a great reduction in mortality and morbidity—and that they should be merged with the hospital and paediatric services. Here Professor Banks was flying a controversial kite which will be heavily shot at by doctors and others in the public health services of local authorities. Dr. Hugh Paul[1 2] has already fired a damaging, though not conclusively destructive, broadside. He takes the view that the work of the maternity and child welfare service is purely educational, and that it is quite beyond the capacity of hospitals to attempt the health education of several million healthy mothers and children. But surely this work is not outside the province of the general practitioner, who, in this connexion, was not mentioned either by Professor Banks or by Dr. Paul. At the Section Meeting in Dublin Dr. J. J. McCann put this omission right and called on his colleagues in general practice to take a full part in the essential work of preventing ill-health.

The controversy about the future of the maternity and child welfare service, and indeed about the public health service in general, will probably be long drawn out. Dr. Paul has done well to stress the educational side of the work. It is true that up to the present time only local authorities and Government Departments have shown much interest in health education, but it does not follow that the methods of education which have been evolved at maternity and child welfare centres, and which now depend greatly on the work of the individual health visitor, could not necessarily be enormously improved. The efforts of the Central Council for Health Education to inculcate new educational ideas have been admirable, but in actual fact very much more serious study of methods is needed, and the Government should be eager to provide money for this. If the cost of the national medical service is not to increase by leaps and bounds the public must be taught two things: how to keep healthy and, when they do fall ill, how to use in a sensible way the services provided.

[1] *Lancet*, 1952, **2**, 143.
[2] *Med. Offr*, 1952, **88**, 32.

GASTRIC ACIDITY

The careful study of a new method for the control of gastric acidity reported by Drs. A. H. Douthwaite and A. Batty Shaw (p. 180) raises many questions for further investigation. These authors show that compressed tablets containing whole milk solids and various antacids (including magnesium oxide), when allowed to dissolve slowly in the mouth between the cheek and the gum, caused a marked fall in gastric acidity. A control test with boiled sweets showed that these had a negligible effect on gastric acidity. It would be interesting to compare the results of sucking a tablet in the mouth and of allowing it to dissolve in the stomach. The authors suggest that these tablets may be a reasonable alternative to intragastric milk-alkali drips. Unfortunately they do not present any evidence of the effect of the tablets on the *p*H curve throughout a normal daytime. A gruel test meal is not an ideal method of testing an antacid, for it stimulates acid secretion by virtue of mechanical distension of the stomach only, whereas a mixed diet contains secretagogues which augment acid secretion.

Douthwaite and Batty Shaw found that their patients needed two to three tablets an hour, but they do not describe the effect of taking the tablets over the course of days, either from the standpoint of the patient or from that of the physician who has to ensure that alkalosis is avoided. It would, indeed, seem that there is a danger of a full turn of the wheel back to Sippy alkalinization. Practitioners, in using this preparation, now advertised widely to the medical profession, should realize that a full clinical trial has not yet been reported but merely a demonstration that such tablets can diminish gastric acidity and may even produce actual alkalinity in the stomach. On this point a word of caution is needed, for it is quite feasible that in the presence of a gastric ulcer an alkaline *p*H, should bile regurgitate into the stomach, might allow tryptic activity and a renewed proteolytic attack on the ulcer.

In recent years there has been overwhelming concern over the control of gastric acidity, but to this day no close correlation has been shown between the degree of gastric acidity and the clinical activity of gastro-duodenal ulcer. It is an everyday experience that ulcers heal in the presence of moderate and high acid test-meal curves. Those who have had experience with 24-hourly *p*H curves will know what little effect routine antacid therapy has on the concentration of acid in the stomach, yet the prestige of antacid therapy remains high. This is, of course, understandable because of the inevitable mental association of acid and corrosion and because of the clinical experience that patients may be relieved of pain after taking antacid preparations. By relieving pain these preparations make an important therapeutic contribution. It is not impossible that pain in itself may set up a vicious circle, with either a reduction in the healing reaction or an aggravation of the damaging factors: although this idea lacks experimental proof, it is consistent with clinical observations. But apart from relief of pain it is remarkably difficult to find any evidence which conclusively proves that antacid therapy really influences the natural history of peptic ulcer.

The importance of anacidity and hyperacidity in the natural history of peptic ulcer should be re-examined in relation to antacid therapy. Chronic ulcers do not occur in patients with complete absence of acid in the stomach (as in Addisonian anaemia), but they can occur with very low acidity, even when there is no acid response to histamine or insulin although acid can be demonstrated by a 24-hour *p*H curve. Davies[1] has shown that experimental ulcers can develop from the intracellular necrosis of oxyntic cells when they are denied adequate carbon dioxide and the death of the cell is due to the accumulation of alkalis within the cell. Acid secreting mucosa may be needed for the development of an ulcer, but there is some doubt whether normal or hypernormal levels of pepsin or acidity are responsible for the persistence of a chronic ulcer.

It is well known that hypersecretion occurs in duodenal ulcer; this is evident by a raised basal interdigestive secretion as well as by an exaggerated response to secretagogues. There is evidence of a peripheral overactivity of the secretory mechanism.[2] The hypersecretion may be an effect rather than a cause of the ulcer and be due to a failure of the usual duodenal mechanism to regulate gastric acidity.[3] Perhaps in the future this reaction may even be shown to be beneficial and to assist healing. We are extraordinarily ignorant about the factors influencing acidity and proteolytic activity in the duodenal bulb, and a traditional attitude may be obscuring better methods of approach.

[1] *Modern Trends in Gastroenterology*, edited by F. Avery Jones, 1952, London.
[2] Hurt, J. N., ibid.
[3] Shay, H., *Bull. N.Y. Acad. Med.*, 1944, **20**, 264.

HALLUX VALGUS

The origin of hallux valgus becomes increasingly obscure as the various factors which have been blamed—such as narrow-toed shoes, high heels, and metatarsus primus varus[1]—are eliminated from the list of possible causes as the result of fresh research. This research and the need for its continuation are abundantly justified by the number of sufferers, for hallux valgus is the most common orthopaedic deformity in the population; together with its concomitants—bunions, callosities, sesamoid arthritis, and osteoarthritis—it causes much pain and discomfort and swells hospital waiting-lists.

Many surveys of selected sections of the population have been made to find the frequency of foot complaints; these have included out-patients,[2] toddlers,[3] schoolchildren,[4] women recruits to the Services,[5] and the aged.[6] No investigation has been made of random unselected samples of the population to obtain the frequency of foot complaints in general: such a survey might provide the factual backing for the impressions gained from a review of selected groups. The recent survey of the Borough of Luton by Dykes, Grundy, and

[1] Hardy, R. H., and Clapham, J. C. R., *J. Bone Jt Surg.*, 1951, **33B**, 376.
[2] Creer, W. S., *Lancet*, 1938, **2**, 1482.
[3] Emslie, M., ibid., 1939, **2**, 1260.
[4] Wilkins, E. H., *Med. Off.*, 1941, **66**, 5, 13, 21, 29.
[5] Winner, A. L., *Lancet*, 1945, **2**, 371.
[6] Sheldon, J. H., *Social Medicine of Old Age*, London, 1947.
[7] *Med. Offr.* 1952, **87**, 223 and 238.
[8] *Lancet*, 1952, **1**, 1180.

Lee[7] is therefore of particular interest, even if the figures obtained were more or less what would have been expected—37% of the population suffered from foot complaints, the incidence being higher in women (43%) than men (30.6%). In this survey forefoot defects were arbitrarily grouped together and contrasted with arch defects. A steady rise in forefoot disabilities was found from childhood to a maximum in the age group 15 to 34 years; thereafter the risk of developing such a complaint rapidly declined. In general, forefoot disabilities were four times as common as arch defects, though in childhood arch defects were the most common cause of complaint.

The work of Hardy and Clapham[8] suggests that the hallux valgus deformity precedes widening of the first intermetatarsal space. This throws a cold douche on the theory that widening of the intermetatarsal angle (metatarsus primus varus) is responsible for the deformity. Though this theory may emerge refreshed by this incident there is obviously need for a more thorough investigation. Two unchallenged facts remain—the existence of a hereditary disposition to develop the deformity, and the fact that it develops in primitive populations who have never worn shoes. An unselected random sampling of foot deformities in such populations would thus be informative. Changing environmental factors would of course have to be taken into account, but in a primitive population these would probably be less than in our own, where, for example, boots in childhood were largely superseded by shoes after 1914. A much more elaborate survey of our own population is also needed. A group of children of the same age, randomly selected, should be followed through to adult life. Only by further study will the hard facts be obtained which are necessary to solve this intricate problem.

BETTER HEALTH

Of that much sought-after trio, health, wealth, and happiness, only health seems year by year to be attained more abundantly by the people of Britain. The startling successes of medical and social workers during the last 50 years are reflected in a death rate more than halved in spite of an ageing population and in infant and maternal mortality rates reduced to one-fifth. Sir John Charles, Chief Medical Officer to the Ministry of Health, summarizes the story again in his report[1] for the year 1950 and adds many details to that "admirable review," as he calls it, of the first half-century which appeared as a special number of this *Journal*.[2] But as the statistics of deaths have ebbed away towards low tide they have left certain islands yet unconquered. Death rates most prominent to-day include those of cancer of the lung, coronary disease, and, to a less extent, acute poliomyelitis—in recent years a conspicuous cause of death even though numerically not so great as many others. While 1950 saw the record low infant mortality rate of 29.9 per thousand live births in England and Wales, which was a striking improvement even on the 1931–5 figure of 62, energetic measures ought to reduce it still further, for in every one of the five years 1946–50 Australia, New Zealand, and Sweden had rates lower than this. That "universal scourge," the common cold, remains a troublesome affliction, and the Common Cold Research Unit has been unable to confirm American claims to have grown the virus on egg or in tissue culture. Other common infectious diseases have been more amenable to medical advances: the incidence of measles, scarlet fever, and whooping-cough is little diminished, but these three diseases, which were responsible for 26,943 deaths in 1898, caused only 1,112 in 1948. To these infectious diseases may be added diphtheria and meningococcal meningitis as now relatively rare causes of death.

While tuberculosis is not the scourge it was, the problem "still forbids complacency." Notification of all forms became compulsory in 1913, but it is still far from complete. One death from tuberculosis in every six occurs in cases not notified before death. A few of these cases are doubtless people who feared to consult their doctor until too late, but in most cases failure to notify "is due to inadequate regard for the statutory requirement." The report emphasizes the need to obey it if proper preventive action is to be taken, and mentions that many of these cases occur in hospital practice, where various members of the hospital staff may each leave notification to someone else.

Dysentery and food-poisoning, though usually causing only transient ill-health and very rarely death in otherwise healthy subjects, are exceedingly widespread and show little sign of diminishing in incidence. In 1950 there were about 17,000 notifications of dysentery in England and Wales, and reports from medical officers of health indicated that there were about the same number of cases of food-poisoning. About 96% of dysentery cases are due to *Shigella sonnei*, and *Sh. flexner* is responsible for the rest. The heaviest incidence is in the young, 70% of the cases being in children aged under 15. An odd feature of the disease in 1950 was its prevalence in Lancashire, Yorkshire West Riding, Durham, and Leicester, which group contributed about 56% of the notifications though containing only about one-quarter of the population of England and Wales. Salmonellae constitute the commonest group of organisms causing food-poisoning, and *Salm. typhi-murium* predominates; staphylococci are the second largest group. Nearly half the outbreaks where the source was known were attributed to processed, made-up, or reheated meat dishes. As the report points out, prevention of this kind of food-poisoning is not primarily a bacteriological problem but depends rather on kitchen hygiene.

Admissions to mental hospitals have considerably increased in recent years. In 1939 direct admissions to former county and borough mental hospitals numbered nearly 27,000, in 1945 over 29,000, and in 1949 over 51,000. This is partly the result of a changed attitude to mental illness—cases of neurosis especially find their way there more readily—and partly a reflection again of the ageing population, for over one-fifth of those admitted in 1949 were aged 65 and over. Alternative accommodation for the elderly is often desirable, but there is not enough of it at present.

[1] *Report of Ministry of Health*, Part II, 1952. H.M.S.O., 6s.
[2] *British Medical Journal*, January 7, 1950. Also available as a book, *Fifty Years of Medicine*.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

PEPTIC ULCER

BY

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Most peptic ulcers encountered in practice are of chronic character. Whatever their precise cause, their progress depends, on the one hand, on the erosive action of the peptic juice and, on the other, on the natural processes of repair. Thus most ulcers are not static, but in a state of uneasy balance. At times, and for reasons which are not obvious, they become larger and deeper and angrier. At other times, and equally without reason, they grow smaller and shallower and less active, and the patient may then become symptom-free for periods to be measured in weeks or months. Sometimes indeed the ulcers heal spontaneously, and in those of recent origin the healing may be complete and permanent, but more often the scar is insecure and sooner or later it breaks down again.

The aim of treatment in peptic ulcer is threefold; to relieve symptoms, to obtain healing, and to prevent recurrence. It is important to recognize that these objectives vary both in their difficulty of attainment and in the means by which they may be brought about. In the absence of complications the symptoms of peptic ulcer can usually be relieved quite easily either by simple medication or at the most by a short spell of rest in bed. Healing of the ulcer can also sometimes be brought about by medical measures, though it is neither simple nor speedy and by no means to be relied upon. Freedom from recurrence can be guaranteed only by surgical operation.

Medical Treatment

Two basic principles underlie all the established methods of medical treatment. The first is that, since ulcers develop only in the presence of acid gastric juice, healing will be expedited by control of the acidity. It is indeed true that some ulcers arise in the presence of subnormal acidity while some heal even though the acidity is very high; nevertheless there is general agreement that to reduce the acidity favours healing, as it most certainly favours the relief of symptoms. The second basic principle is to put the diseased part at rest by reducing motor activity and spasm and by the avoidance of traumatizing foodstuffs.

Recently the introduction of the ganglionic blockade drugs seemed to offer a ready means of satisfying both these requirements, for these drugs, by blocking all vagus impulses, are capable of reducing to zero the nervous component of the gastric juice, and they also greatly reduce the motor activity of the gastric musculature. Unfortunately, while effective on intramuscular injection, they are very much less reliable when given by mouth, while in some patients their side-effects on the blood pressure or on visual accommodation bar their wide use. It is possible that in the future new methods may be evolved for controlling the acid secretion, perhaps by antagonizing the pyloric hormone or by inhibiting the histamine effect on the parietal cell, but in the meantime the medical treatment of ulcer must depend on old-established methods.

Every chemist's shop-window testifies to the variety of medicaments in popular favour as ulcer cures, and their very diversity and number give proof that none is really effective. Antacids are valuable in the immediate relief of ulcer pain, and in this respect the homely baking soda is quite the most effective. Nearly all the proprietary tablets and powders which enjoy such profitable though fleeting popularity owe most of their virtue to this particular constituent. Adsorbents such as aluminium hydroxide, though less rapid in effect, give more prolonged benefit, but despite its theoretical disadvantages many patients prefer the simple standard alkaline powder. Olive oil suits some patients, while others find belladonna of value.

Quite the most effective way of getting rid of the acid juice is to void it through a stomach tube. Many doctors find such an idea repulsive, but in fact the method is exceedingly simple and gives far greater relief, and for a greater length of time, than any medication. This treatment is best carried out two to three hours after a meal, when the pain is at its height. A No. 10 tube is conveniently carried rolled up in a handkerchief, and no other equipment is needed. The tube is lubricated under a tap and swallowed, and the highly acid chyme evacuated by stooping over a lavatory basin. Often much gas also is evacuated, with much benefit.

Apart from controlling the acidity, the main instrument of medical treatment is the diet. The food should be soft and non-traumatic, it should be without condiments and the more powerful stimulants of acid secretion, but it should not necessarily be dull and insipid and lifeless. It is a common observation that after weeks of suffering on a pallid fare of milk and fish and tripe a rash surrender to the attractions of a mixed grill sometimes unexpectedly gives relief, which can only be explained as a psychological reaction against the monotony of the standard diet. Attention must therefore be paid to taste and appetite and colour appreciation as well as to the mere absence of harmful constituents. Indeed, provided that the consistence is soft, a wide variety of foodstuffs may be introduced, including butcher's meat, vegetable purées, and even the softer kind of fruit. Meals must be small and frequent, two features which are just as important as the type of food.

Psychotherapy

Most psychiatrists now agree that formal psychotherapy has no place in the treatment of an established ulcer, but the informal psychotherapy which every good practitioner employs is undoubtedly valuable. It must, however, be applied intelligently. The average ulcer patient is no fool to be convinced by a hearty assurance that all will be well, but he does respond to sympathetic handling and to the feeling that the doctor "understands his case," while, on the other hand, he reacts badly to the all-too-common feeling that he is a neurotic and hypochondriac. In this connexion it should be recognized that, while many neurotics invent digestive disturbances, the ranks of genuine ulcer cases contain no higher proportion of neurotics than does the population at large. Most ulcer patients, indeed, are the reverse of neurotic. They may be anxious and worried, but they never invent symptoms, generally make light of their suffering, and rarely give up work unless the pain is intolerable.

One prevalent idea in the medical care of ulcer patients is mentioned only to be condemned. That is the idea that the patient should "make peace with his stomach," modify his way of life, avoid all causes of stress and worry, and in fact vegetate. It is true that such advice if given—and taken—in time might have prevented the ulcer, though it cannot assist the cure; but the main objection is that a recommendation of this type cannot possibly be followed by patients with the ulcer temperament. They are driven to continued activity by forces beyond their control, and no

amount of disinterested advice will avail to alter them. Moreover, advice of this sort is a policy of despair, robbing the patient of all joy in life. Rather he should be fortified by encouragement, assured that the future is by no means devoid of hope, and advised to live as actively as his health permits.

Indications for Operation

Formerly it was laid down as a cardinal principle that operation should be considered only after a full course of medical treatment had been tried and failed. Such a standpoint can no longer be maintained. On the one hand, few patients can now afford the time and cost of a full course of medical treatment, involving as it does a lengthy period of rest in bed with a prolonged convalescence, on a diet which, to be adequate, must prove quite expensive. On the other hand, operative treatment is far less of a hazard than formerly. Owing largely to improvements in anaesthesia and in medical care before and after operation, the risk to life is now very small, while with a proper selection of cases there is a strong prospect of speedy convalescence and quick return to full health and strength.

In considering the advisability of operation, attention must be given to the duration and severity of the symptoms, to the economic disablement they cause, and to the presence or probability of complications such as haemorrhage and pyloric stenosis.

In gastric ulcer the question of malignancy also arises. Ulcers in the prepyloric region are especially dangerous. In this area the diagnosis between benign and malignant ulcers is by no means easy, whether based on clinical or radiological criteria or on gastroscopic examination, and, even though benign at the time of examination, such an ulcer is liable to malignant change. Though it is now agreed that the frequency of this development is not high, nevertheless it is sufficient to demand consideration. In suspicious cases operation should be advised at once, while even in cases of undoubted benignity operation should be advised if complete healing has not been achieved within a few months.

The treatment of the bleeding peptic ulcer is too big a problem to consider here, but it will be agreed that a history of previous haemorrhages must always weigh the scales in favour of operation. Pyloric stenosis also, though sometimes capable of a good deal of relief by medical measures, is usually to be regarded as a clear indication for operation.

In uncomplicated cases the decision to operate should be based on the severity of the symptoms, and it must be borne in mind that the best results are generally to be expected in patients with a long history and much pain. Among other criteria nocturnal pain and deep boring pain penetrating to the back are regarded as indications for surgical treatment.

Choice of Operation

There is wide agreement that some form of partial gastrectomy is the operation of choice in most cases. When advised on proper indications it gives an excellent prospect of rapid recovery to full health and strength, and such sequelae as the "small stomach" or "dumping" syndrome are troublesome only in a small minority of cases.

In two types of patient, however, the older operation of gastro-jejunostomy is to be preferred, either alone or combined with vagotomy. The first type includes practically all women with duodenal ulcer, because such patients after gastro-jejunostomy are but little liable to recurrent ulcer at the stoma, whereas after gastrectomy they are very liable to severe grades of anaemia and vitamin deficiencies, as well as to the dumping syndrome. The second type includes those elderly men with duodenal ulcer who by reason of other diseases are not good subjects for the major procedure. In this class of patient gastro-jejunostomy gives an extremely satisfactory result, for the relief of pain is immediate and the risk of secondary ulcer is very small.

Post-operative Care

In former days, owing to the high risk of jejunal ulcer, the patient was always enjoined to continue for months or even years the same regimen of diet and medication to which he had submitted before the operation. Such advice is psychologically harmful and fortunately is no longer necessary, for after gastrectomy the risk of secondary ulcer is almost negligible. The proper approach to the post-gastrectomy patient is to make it clear that he has now been fully restored to health, and to encourage him to get back rapidly to normal life and work. Apart from limiting the size of meals to suit the reduced capacity of the stomach he should apply no dietary restrictions at all, nor should there be any limit to other normal activities. One of the most harmful pieces of advice to the patient fresh from hospital is to "take life easy" and have a long convalescence. For most patients the best form of rehabilitation is to return to normal work. For a man in light employment this is often possible within a month of operation, while for a heavy labouring job it should not usually be delayed longer than three months.

Next Refresher Course Article.—"Resuscitation of the Apparently Drowned," by Dr. E. J. Gordon Wallace.

A SCHEME FOR THE CARE OF THE AGED AND CHRONIC SICK

BY

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AND

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Development of services for the care of the aged and chronic sick is impeded by : (*a*) the difficulty of designing accommodation which will meet adequately but economically the varied needs of elderly patients ; (*b*) division of responsibility for services between hospital boards and local authorities ; and (*c*) failure to define precisely the respective duties of the two authorities. The first difficulty is inherent in the nature of the problem ; the second derives from present-day organization of health and welfare services ; the third can be overcome given legislation based on more exact knowledge of patients' medical requirements and social circumstances.

The duties of local authorities and hospital boards in respect of old people who are either well or acutely ill are not in doubt, but responsibility for the considerable proportion of the aged and chronic sick who cannot be so classified is not clearly assigned. A hospital board can find justification for believing that this is the concern of local authorities in Section 21 of Part III of the National Assistance Act, which states that it is the duty of every local authority to provide "residential accommodation for persons who by reason of age, infirmity, or any other circumstances are in need of care and attention which is not otherwise available to them"; and a local authority may "provide on the premises in which accommodation is being provided such health services, not being specialist services or services of a kind normally provided only on admission to a hospital, as appear to the authority requisite and as may be specified in the scheme under this Section."

Equally, a local authority can find grounds for believing that responsibility rests with hospital authorities in Section 79 of the National Health Service Act, which defines a hospital as "any institution for the reception and treatment of persons suffering from illness," and defines illness as including "mental illness and any injury or disability requiring medical or dental treatment or nursing."

The intention is evidently to leave to local authorities domiciliary and institutional care of persons who need not be admitted to hospitals, but this turns on interpretation of "services of a kind normally provided only on admission to hospital." At a time when Government departments are being pressed to economize, both authorities inevitably take a cautious view of their commitments, and more precise guidance is clearly required. Our purpose here is to suggest a scheme for the care of the aged and chronic sick which has in view the patients' medical requirements and social circumstances, and which could be accommodated within the existing administrative framework if the respective responsibilities of the two authorities were made more explicit.

Classification of Patients

Clearly no effective and economical administration can be devised without preliminary classification of patients according to their medical requirements and social circumstances. This is not a new idea. Many years ago the Webbs, in considering the care of "the aged and infirm," recognized that "there would have to be a grading of homes for the aged" based on "classification of inmates," and they included the following among recommendations in the Minority Report of the Poor Law Commission, 1909: "That it is a necessary preliminary of any effective reform to break up the present unscientific category of 'the aged and infirm,' and to deal separately with distinct classes according to the age and mental and physical characteristics of the individuals concerned."

This proposal had in view the welfare of patients as well as economy of administration. That it is only now receiving serious attention is attributable mainly to the fact that there was little pressure on poor law and local authorities to ensure that their arrangements were as acceptable to this large but inarticulate class of patient as to their finance committees. Paradoxically, it is the present division of responsibility between two authorities, regrettable though it may be on other grounds, which has provided the necessary stimulus for a reconsideration of accommodation in the light of a more searching inspection of individual requirements.

To be useful such a classification must have regard both for patients' needs and for the administrative framework within which they must be met. Guided by the results of a systematic examination of patients in a large hospital for the chronic sick* (Lowe and McKeown, 1949) or seeking admission to hospital (Lowe, 1950) we suggest identification of the following four groups.

Group 1.—Patients who require frequent medical attention or skilled nursing, and are thus distinguished by age alone from the younger patients who occupy the wards of general hospitals. Most of them are acutely ill; others need hospital investigation, or are in the terminal stages of malignant disease.

Group 2.—Patients who do not require frequent medical attention or skilled nursing, but are confined to bed. They need simple nursing (washing, feeding, lifting, attention to bladder and bowels, etc.) and occasional medical supervision. Patients in this group exhibit many different pathological conditions, but some have no specific lesions and merely suffer from infirmity associated with advanced age.

Group 3.—Ambulant patients who need a little simple nursing and occasional medical supervision. These are the patients commonly referred to as "frail-ambulant"; they are "mainly rehabilitated hemiplegics, arthritics, bronchitics, or mild senile dements, who should be kept under medical supervision to prevent subsequent relapse" (Howell, 1951).

Group 4.—Ambulant old persons not in need of medical or nursing care (the type of person ordinarily admitted to welfare homes).

*About one-fifth of the patients needed constant supervision because of their mental state. We consider that these patients should be provided for under the mental health services, and they are therefore not included in the suggested classification of aged and chronic sick.

Desirability of a Single Authority

For several reasons it would undoubtedly be most satisfactory to assign responsibility for all these patients to a single authority:

(*a*) The four groups listed above are not sharply identified one from another, and not infrequently it may be difficult to decide in which group a patient should be placed. Under one administration this should have no serious consequences, but it may be a source of delay and friction when two separate authorities are in dispute about disposal.

(*b*) Within a short period of time the same individual may require admission to more than one kind of accommodation, and transfer would undoubtedly be easier under a single authority. This problem is not confined to the first three groups, since old people in welfare homes may require admission to hospital, sometimes for a considerable period in each year.

(*c*) The system of dual finance, by which one service is financed by the Exchequer and the other by local rates, must aggravate the difficulty of transfer between two authorities, since both have a financial motive for limiting their commitments.

Nevertheless we must accept the fact that in present circumstances no fundamental change can be anticipated. For it is most improbable that local authorities would be asked to resign to hospital boards their responsibilities for residential accommodation for the aged (the Part III services), which are largely financed by local rates. And, except as part of a more comprehensive modification of the Health Service Act, it is almost equally unlikely that the basic institutional medical services for the chronic sick would be assigned to local authorities. In spite of its manifest disadvantages, we must accept the fact of a divided commitment.

Disposal within the Present Legislative Framework

The disposal of two of the four groups of patients listed above is not in doubt, since patients needing frequent medical attention or skilled nursing (group 1) are clearly the responsibility of hospital authorities, and old people who are ambulant and in good health (group 4) are the inmates of local authorities' welfare homes. Further, there is now wide agreement that bedfast patients who require only simple nursing (group 2) should also be cared for by the hospitals, though there is a natural preference for separating them in some type of long-stay annexe where they can be accommodated more economically than in general wards. The only real doubt arises about disposal of the frail-ambulant (group 3); let us note that a case can be made for assigning responsibility to either authority.

Reasons for Making Hospital Boards Responsible.—(*a*) This would leave all institutional medical services in the hands of one authority. (*b*) It would undoubtedly facilitate transfer of patients between those classes of institution in which medical services are provided. (*c*) The most difficult part of the staffing problem is likely to be the provision of simple nursing, and it should be easier for a hospital than for a local authority to arrange the requisite attention.

Reasons for Making Local Authorities Responsible.—(*a*) For the ambulant patient the atmosphere of the municipal welfare home is greatly to be preferred to that of a hospital. For, however enlightened the administration, it is virtually impossible to admit these patients to hospital without placing them in an environment of sickness. (*b*) The ordinary residents of welfare homes often have short bouts of illness which, were an alternative in sight, would not justify admission to hospital. The proposed addition of nursing facilities to municipal homes would provide this alternative. Under existing arrangements these patients have difficulty both in getting into hospital, where the authorities are afraid they may remain when the acute phase is past, and in returning to welfare homes, where the possibility of admitting an invalid is always feared.

Since much can be said on both sides it is perhaps premature to express a preference for either administration, and indeed it may be desirable to try both before choosing between them. (The King Edward's Hospital Fund for London has provided money to support a number of homes for the frail-ambulant; one of them, associated with a hospital, is described by Howell (1951).) But we should note that the case for leaving the service with hospitals rests essentially on administrative convenience, whereas the case for transferring it to local authorities has regard primarily for the welfare of patients. The latter undoubtedly is the preferable objective; but if arrangements were less than adequate it is probable that patients would be better off under the hospitals.

Although no definite ruling has yet been given, the Ministry of Health evidently favours assigning the care of the frail-ambulant to local authorities. In a circular distributed to regional hospital boards and hospital management committees (R.H.B. (48) 40 and H.M.C. (48) 24) the sick and infirm are distinguished as follows:

"*Sick*—and therefore proper to the board—patients requiring continued medical attention or supervision and nursing care. This would include very old people who, though not suffering from any particular disease, are confined to bed on account of extreme weakness.

"*Infirm*—and therefore proper to the local authority—persons who are normally able to get up and who could attend meals either in the dining-room or in a near-by day-room. This class would include those who need a certain amount of help from the staff in dressing, in toilet, or in moving from room to room, and also those who, from time to time—e.g., in bad weather—may need to spend a few days in bed."

The distinction seems clear enough. But it is offered, with exemplary reticence, as advice which "may be not unhelpful in deciding doubtful cases," and something more definite will be required if both hospital boards and local authorities are not to continue to evade their ill-defined responsibilities on grounds of economy. The Ministry's preference (to assign the care of the frail-ambulant to local authorities) seems the right one, but the case for the alternative is strong enough that either decision, definitely taken, would be preferable to the present uncertainty. In this matter more is at stake than responsibility for the frail-ambulant, for no comprehensive scheme for the care of the aged and chronic sick can be implemented until all the respective duties of the two main authorities are defined unequivocally.

Suggested Scheme

It is suggested that the four groups identified above should be cared for as follows: group 1 in geriatric wards of general hospitals, group 2 in long-stay annexes, group 3 in nursing-homes attached to old people's homes, and group 4 in old people's homes. For various reasons all parts of the scheme cannot be implemented immediately (in particular the provision of geriatric wards within general hospitals), but it seemed best to present the proposals as a whole before considering modifications which may temporarily be necessary.

Home Services.—From the point of view of administration—and, one hopes, of patients also—no alternative can be as satisfactory as patients' own homes, and it is evidently desirable that in future no patient should leave his home, or fail to return to it after a period in hospital, for lack of any service which the community can reasonably be expected to provide. But, unless home circumstances are exceptionally favourable, the provision of ancillary services by local authorities will rarely make it possible to keep an acutely ill patient out of hospital. Adequate home services (nurses, home helps, laundry, meals, etc.) would, however, reduce the pressure on the long-stay annexe and nursing-home (here suggested as responsibilities of hospital boards and local authorities respectively). Existing domiciliary services are inadequate for this purpose—in particular the home-help service, upon which there are other heavy demands.

Local Authority Services.—The main point of controversy in the scheme will be the association of simple nursing facilities with local authority welfare homes. We have already given our reasons for suggesting this arrangement. The accommodation is intended to serve a dual purpose: (*a*) to make it unnecessary to admit residents of welfare homes to hospital because of minor illness; and (*b*) to provide accommodation out of hospital for the frail-ambulant. In Howell's (1951) experience the staff needed for this type of accommodation is a matron supported by a few residents; no nurses are required at night. Except in the case of the matron, it should be unnecessary to employ State-registered nurses. Medical supervision could be provided by general practitioners. It is perhaps unfortunate that the name "half-way house" is now suggested for this type of accommodation, and no name seems necessary for what is merely the addition of facilities for simple nursing to welfare homes.

Hospital Services.—It is proposed that hospital accommodation should comprise (*a*) geriatric wards within the general hospital, and (*b*) a long-stay annexe associated with the hospital, and preferably within its grounds. The patients suggested for admission to geriatric wards are on all fours with younger applicants, and have the same need for the special facilities of a general hospital. The desirability of admitting the aged sick to general hospitals is well recognized, but estimates of the accommodation they would need, derived from the numbers of patients at present in chronic sick hospitals, have seemed to prohibit the general application of this policy. The implementation of a scheme such as here proposed would reduce the numbers to manageable proportions, and it would then be necessary to use only about one-tenth of general hospital beds for the acutely ill elderly patient (Lowe and McKeown, 1949).

If we accept the desirability of admitting the aged sick to general hospitals it may be asked whether it is necessary to separate them in special wards. We are satisfied that it is reasonable to do so, mainly because the care and subsequent disposal of these patients require the attention of staff with a special interest in the management of old people.

It would obviously be difficult to staff a long-stay annexe as an isolated institution, even though it need make few demands upon skilled nurses. If the annexe were in the same grounds as a general hospital this difficulty could be overcome by requiring medical and nursing staff of the general hospital to accept the care of the elderly as part of their work. For although many doctors and nurses would find such work intolerable as a full-time commitment, there seems no reason why they should not accept it as an occasional obligation under a rotational scheme.

Discussion

The parts of this scheme which could be implemented immediately are the improvement of domiciliary services of local authorities and the provision of nursing-home facilities in association with welfare homes. In most areas the

infirmaries must continue for some time to serve the dual function of long-stay annexe and geriatric ward, but if the proposed rearrangement were approved there should be no further building of separate hospitals for the chronic sick.

On present evidence exact estimates cannot be given of the amount of accommodation needed or of cost per patient in each of the different types of institution. Approximate figures which are consistent with Birmingham hospital and welfare experience are as follows:

Authority Suggested	Type of Accommodation	Patients per Million of Population	Estimated Cost per Patient per Week (£)
Hospital authorities ..	General hospital	300	10–15
	Long-stay annexe	600	5–7
Local authorities ..	Nursing-home	300	4–5
	Old people's home	1,000	2½–3

The estimated proportion of old people who need welfare accommodation is based on the actual number now in Birmingham welfare homes (920), the city population being 1,002,603. Estimates for the other types of institution are less reliable; they were obtained by applying results of an investigation of 1,005 chronic sick in one hospital to the total population of chronic sick in Birmingham infirmaries (1,515). Excluded from the Table are mental cases in Birmingham hospitals for the chronic sick (approximately 300), not considered in this scheme. All the estimates are conservative, since provision of adequate accommodation would obviously result in an increased demand.

Nothing in these proposals is inconsistent with the relevant sections of the National Health Service and National Assistance Acts, and they are entirely in keeping with the advice contained in the Ministry circular referred to above. Our main purpose has been to outline the scheme as a whole, and to suggest the kind of machinery essential for its effective operation. Mainly this will require a more precise definition of the respective responsibilities of the two authorities, and a readiness on the part of both authorities to facilitate a rapid exchange of patients, upon which effectiveness of administration and welfare of patients both depend.

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N.A.P.T. CONFERENCE

The Third Commonwealth Health and Tuberculosis Conference, organized by the National Association for the Prevention of Tuberculosis, was held at the Central Hall, Westminster, from July 8 to 11, when some 800 representatives—medical, nursing, medico-social, and lay—from over 50 countries attended. The Duchess of Kent (president, N.A.P.T.) addressed the Conference. The Duchess of Portland (chairman), Sir Robert A. Young (vice-chairman), Sir Geoffrey Todd, and other members of the council presided at the seven sessions.

Sir ANDREW DAVIDSON (Chief Medical Officer, Department of Health for Scotland) referred to the unfortunate experience in Scotland, where the wartime increase in tuberculosis had persisted; optimism in the curative field should not blind us to the fact that control of infection must be based on prevention—the key to eradication. Decreased mortality had not been accompanied by decreased prevalence.

Dr. J. B. MCDOUGALL, Chief of the Tuberculosis Section of the World Health Organization, outlined the help his organization had given to many countries in the fight against tuberculosis.

Domiciliary Treatment

On the domiciliary management of the "open" respiratory case and of the minimal lesion, Dr. W. D. W. BROOKS (St. Mary's Hospital and Brompton Hospital, London) said there was no rule of thumb to decide when a case should be treated at home instead of in hospital: information from the family doctor and the health visitor was necessary, for in a poor home it might be disastrous to leave a patient in his old surroundings. Treatment at home might, however, be associated with a short stay in hospital for artificial pneumothorax or phrenic crush; and there was a wide variety of therapeutic treatment now available for domiciliary treatment. No one wanted the chronic patient; if the accommodation existed there would be a tremendous case for admitting such patients to hospital. To leave children or adolescents living at home with an infectious case was to invite disaster.

Dr. E. M. DIMOCK (Broxbourne, Herts) put the views of the family doctor. Early diagnosis transcended everything else that could be done for the patient. Many influences to-day tended to disrupt family life and discourage individual responsibility. The family doctor could counter these trends by training his patients in a responsible attitude to both health and disease. The chest physician should undertake domiciliary treatment only in close co-operation with the family doctor, and if possible the patient should be present at a consultation. Dr. Dimock would welcome periodical courses arranged by the hospital authorities on the diagnosis and treatment of tuberculosis; and discussions at the sanatorium.

Opportunity for the general practitioner to take part in discussions with the chest clinic team on particular patients was endorsed by several speakers.

Minister's Views

The Minister of Health, Mr. IAIN MACLEOD, spoke of the progress made against tuberculosis, citing reduced mortality, more mass radiography units, shorter waiting-lists, expansion of the use of B.C.G., new drugs, etc. But there was need for greater facilities for thoracic surgery, night sanatoria, and hostel accommodation, for there was little reduction in the number of new cases. Now was the time to redouble the attack.

At other sessions the Conference heard: Dr. Ralph Tompsett (Associate Professor of Medicine, Cornell) on the preliminary trial of the new drug isoniazid for miliary tuberculosis and meningitis; Dr. Marc Daniels, who described the trials being organized by the Medical Research Council in this country; Mr. Oliver Lyttelton, Secretary of State for the Colonies; Dame Dehra Parker, Minister of Health for Northern Ireland, who spoke in favour of a separate statutory tuberculosis authority; Dr. Charles Hill, Parliamentary Secretary, Ministry of Food, who reported great progress in the supply of safe milk; and other distinguished physicians, surgeons, and persons in public life.

A session devoted to the Colonies provided a valuable exchange of reports, problems, and opinions by medical representatives. The final session dealt with the patient in industry: "A return to work is the vital part of the doctor's duty to his patient," said Dr. Peter W. Edwards (Cheshire Joint Sanatorium).

Sheep-dogs frequently suffer from malnutrition, said Dr. J. Russell Greig in his annual report as director of the Animal Diseases Research Association (*Scotsman*, July 17). Diseases of farm animals have long been studied, but everyone has forgotten the animal without which sheep husbandry would be virtually impossible—the sheep-dog. He had collected about 700 case histories of sheep-dogs in England and Wales, particularly in hill districts, with information on their condition, management, and feeding, and had found that, while the dog was given plenty of food, it was an unbalanced ration, often deficient in nicotinamide and vitamin B_2. This was simple and inexpensive to correct, once it was recognized.

RECENT ADVANCES IN MEDICAL SCIENCE

ANNUAL REPORT OF THE M.R.C.

The 37th annual report[1] of the Medical Research Council, covering the year from October 1, 1950, to September 30, 1951, was published on July 16, 1952. It follows the pattern established last year of describing progress in a selection only of the scientific fields in which the Council is promoting research. This enables the report to deal more fully and intelligibly with its selected subjects, and to draw generally on the discoveries of recent years rather than of only the last 12 months. The additional perspective clarifies the purpose and the progress of the M.R.C.'s work, and shows its great practical value. It is amazing that so much can be achieved on a very modest budget: the annual cost to public funds is roughly £1.5m., with rather more than £250,000 extra for capital expenditure on buildings and major equipment.

Infectious Diseases and Antibiotics

Some of the work in this section has already been recorded in the *British Medical Journal*. The discovery that whooping-cough is five times more common in untreated children than in those vaccinated with a pertussis vaccine was made after a two-year study of nearly 10,000 children under 2 in Oxford, Manchester, Leeds, and several London boroughs,[2] and now a further 30,000 children in nine centres have been inoculated with vaccines made in different ways in order to find out how to produce one of great potency. Experiments to discover how to test for potency in the laboratory instead of by laborious clinical trial are also under way.

Over 40,000 children leaving school are taking part in a test of the effectiveness of B.C.G. in producing immunity to tuberculosis, and the full results will not be known till 1956. A national survey of tuberculin sensitivity showed that fewer children had had a primary infection in the south than in the north, and fewer in the towns than in the country.

The American announcement in February of the effect of *iso*nicotinic acid hydrazide on tuberculosis was followed at once by the formation of a special committee to organize a controlled clinical trial here, and a comparison with streptomycin and P.A.S. By the end of April 35 hospitals and over 200 patients were participating, and any striking effect is to be reported without delay. It may be wondered why so often the M.R.C. undertakes independent trials instead of relying on the extensive and often enthusiastic American reports of new antibiotics. Sometimes this is to fill in gaps in research by making a systematic study of usefulness in diseases not yet fully investigated with the new therapy. But a disease like pneumonia may vary in nature and severity from one country to another, and a successful American treatment may be less effective in Britain. A large trial showed that penicillin[3] was actually more effective against pneumonia than aureomycin, chloramphenicol, or terramycin.

Pseudomonas pyocyanea is difficult to eliminate from infected burns and may prevent skin grafting, and is also troublesome in the eye. A new antibiotic, polymyxin E. has been found to be very effective in destroying this organism.

Infantile gastro-enteritis, in particular summer diarrhoea, remains an aetiological problem. A special serological type of the *Bact. coli* normally present in the bowel is suspected as the cause, since in epidemics these "alpha" coliforms have frequently been found in a majority of the sick infants but not in control children or adults. They may of course be merely secondary invaders. They are sensitive to chloramphenicol and aureomycin, and clinical trials of treatment with these antibiotics are in progress.

[1] Cmd. 8584. 1952 (H.M.S.O., price 6s.).
[2] *British Medical Journal*, 1951, **1**, 1463.
[3] Ibid., 1951, **2**, 1361.

Understanding the Eye

Glaucoma is a common source of blindness in this country, and new knowledge of how the aqueous humour of the eye is formed has brought a new view of its pathology. Intraocular fluid comes partly by diffusion from neighbouring blood vessels, partly from secretion by specialized cells within the eye, and it is secretion which maintains normal intraocular pressure and flow. But changes in intraocular pressure depend chiefly on changes in blood flow in the local vessels, which are under nervous control and can be studied *in vivo* through plastic windows inserted in the eyeball. Glaucoma in its early stages is not due to some obstruction of ocular drainage but to an instability of nervous vascular control leading to spasmodic rises of intraocular tension and consequent compression of the optic nerve.

This study of circulation in the eye has also shown that drugs must be fat-soluble to pass from the blood into the inner eye, which explains why penicillin is powerless against deep infections and chloramphenicol effective. Cortisone also penetrates readily, and is very valuable in controlling acute inflammation, whether bacterial, allergic, or traumatic in origin.

Much of the Ophthalmological Research Unit's year was spent on the cortisone work, and the same was true of other M.R.C. workers. For example, the M.R.C. is organizing a controlled trial of cortisone and A.C.T.H. in rheumatic fever, particularly to see whether they prevent cardiac damage, in association with the National Heart Institute of the U.S.A. at Bethesda (Md) and with the Council on Rheumatic Fever of the American Heart Association. An M.R.C. team discovered a promising, cheap, and plentiful source of hecogenin for synthesis into cortisone in sisal waste from East Africa.

Fundamentals of Life

Many hormones, such as A.C.T.H. and insulin, all enzymes, viruses, fibres such as collagen and hair and the contractile substance of muscle, and indeed the protoplasm of cells generally, are all chemically proteins. They exist as large molecules composed of an assembly of amino-acids, linked together in chains which may be straight or coiled. Research on proteins aids the investigation of many of the fundamental phenomena of life, and also has practical value for medicine. It would be useful if A.C.T.H. could be made synthetically, but the synthesis of any protein is as yet impossible. However, the order in which all the amino-acids are linked one to another in the chain of insulin has at last been discovered. When the manner in which this chain is coiled up to make physiologically active insulin becomes known, synthetic insulin becomes possible. Meanwhile the new methods invented for investigating insulin are applicable to other proteins, such as A.C.T.H. and haemoglobin. Sickle-cell anaemia is due to an abnormal form of haemoglobin within the erythrocytes, which precipitates inside the cells when little oxygen is available, and thus distorts them and makes them more fragile. Protein chemistry will throw more light on this abnormal form.

Freezing may denature proteins, and ice crystals rupture cells. However, M.R.C. workers have found that adding glycerol to semen or to blood protects them against low temperatures. Normal chicks have been produced from spermatozoa frozen for nine months in liquid air at −192° C., and viable bull semen can also be stored like this. Red cells frozen for three to six months have afterwards been successfully used for transfusion. Hormone-producing cells of the ovary, and probably of the adrenal, can also be preserved by freezing, and subsequently used for grafting. Skin grafts can also be frozen and kept for use several weeks later if part of a burned area has failed to heal.

Many studies are in progress on the skin. The incidence of fungal infections of the feet in coal-miners, the efficiency of different washing agents in removing oil and grease, the

study of "contact dermatitis" in bits of isolated skin growing normally in test-tubes, and different aspects of skin grafting are some of them. The sebum which normally coats the body with a protective greasy layer about 1 μ thick was soaked off the arms of Birmingham volunteers with acetone, and found to consist to the extent of 40% of long-chain fatty acids, including oleic, which has a disinfectant action on streptococci and other pathogens.

Polar Cold and Tropic Heat

The extension of war into deserts and tropical jungle, beneath the sea, and to 40,000 ft. in the atmosphere, with the possibility of future Arctic and Antarctic struggles, has stimulated the creation of several M.R.C. groups, and yielded results of general and peaceful interest. Man appears by evolution to be a tropical animal, and acclimatization to heat has long been recognized. Physiological comparison of races shows that the Bantu miner is no different from the white man in this; in fact, under laboratory conditions, white men have adapted themselves to temperatures and humidities greater than the normal African range. Work is now proceeding at Cambridge on the effects of heat on a man's ability to take decisions and do skilled work. A hot room has also been built at the R.A.F. Institute of Aviation Medicine, where temperatures can be fixed at will anywhere between 5° F. and 167° F. (−15° C. and +75° C.), while the National Institute at Mill Hill has a cold room −40° F. to +68° F. (−40° C. to +20° C.). Evidence has now been obtained that acclimatization to cold does occur in man. Volunteers sat in a room at −10° C. for two hours daily and let their fingers get numbed by a cold wind. The degree and duration of numbness decreased on repeated exposure. Exposure to cold causes a shift of blood from the limbs into the lungs, which may explain the gasping for breath sometimes noticed on plunging into icy water. Other work showed that a man will live longer in cold water if he swims vigorously instead of merely floating.

Other Matters

Space does not permit much notice of all the topics mentioned in the Council's *Annual Report*—accounts of the war on malaria and on cancer, for instance. The Chester Beatty Research Institute, which works with the Royal Cancer Hospital, has been taken over from the National Health Service, and will receive a block gran rough the M.R.C. to continue as an Institute of Cance Research within the British Postgraduate Medical Federation. Statistics have continued to give valuable aid in the design of clinical trials, showing how many patients would be required to get a clear-cut result, and in the assay of drugs on animals, as well as in disentangling aetiological factors in paralytic poliomyelitis, infective hepatitis, and congenital defects. An important aspect of preventive medicine in an industrial society is the care of the worker. The M.R.C.'s Applied Psychology Research Unit studies ways of avoiding fatigue, strain, and error, and of increasing skill or transferring it from one situation to another, and their results influence the design of machines and the arrangement of work.

The *Report* naturally contains a complete list of all the Council's research groups and committees, with their staffs, addresses, research programmes, and recent publications. There is also a brief note on the various studentships, scholarships, and fellowships available to aid research workers or to train them (see also leading article on p. 200). The occasion provided by the death of Lord Addison at the end of 1951 has been taken to reprint a Memorandum prepared by him in 1918 as Minister of Reconstruction, which sets forth the reasons for placing medical research directly under the Privy Council rather than under the Ministry of Health or some other Ministry. His advice was taken and the Medical Research Council created in 1920. Its impressive record since that date is justification enough, if one were needed, for the rightness of his policy of freedom.

Nova et Vetera

JOHN HUNTER AGAIN

Portrait of a Surgeon: A Biography of John Hunter. By Ernest A. Gray. (Pp. 219; illustrated. 16s.) London: Robert Hale. 1952.

Mr. Gray has written a very pleasant and pleasantly informative account of Hunter. He rightly calls it a portrait, for a true life of Hunter remains to be written. He was so great a man, great both in conception and execution, that perhaps a life of him could be written only in collaboration. It would need especially to set out all his scientific achievements, and this has hardly been even attempted since F. H. Butler wrote his admirable outline of the subject for the eleventh edition of the *Encyclopaedia Britannica* (1910). It may be hoped that one day the Royal College of Surgeons will appoint a Commission to consider and undertake this very important and arduous task. Meanwhile Mr. Gray has added to the list of useful portraits which we already possess from the hands of artists as learned and skilful as Stephen Paget and Sir Arthur Keith.

Among the more valuable elements in Mr. Gray's book is his account of eighteenth-century London and of Hunter's relations with his pupils. The former is well illustrated by a quotation:

> "Through the arches of the bridge boiled a fierce tide which it was reckoned drowned fifty watermen, bargees, and sailors every year, at a loss to the country estimated at £20,000. This tide was harnessed at the banks to turn water-wheels which feebly pumped a trickle of undiluted water of quite inadequate amount, but which with the New River Head and the Fleet Ditch was practically all the water supply the city possessed; insufficient for drinking purposes—always supposing Georgian tastes set that way, which except for making tea and coffee they certainly did not—and totally inadequate for cleansing the streets, particularly of the filth and offal from the various markets, of which Smithfield, an offence in Dickens' day, was in 1731 the largest live market in the world."

Hunter's relations with Jenner have been often related, but Mr. Gray has gone to some pains to trace the careers of others less distinguished. Quite astonishing, to modern ears, was the size of Hunter's household. With pupils and servants, with printers, dissectors, and gardeners, they totalled scores in his two houses—all supported on a practice that was by no means the largest of the day. The book is well produced, illustrated, and indexed, though there are rather too many misprints.

CHARLES SINGER.

New audio-visual aids and uses for those already known are proving extremely valuable in the training of medical students, according to three articles in the July issue of an American journal, *Medical Education*. Dr. J. S. Butterworth and Dr. C. A. Poindexter, of New York University Postgraduate School, describe the educational electron cardioscope. This instrument is equipped with an audio-amplifier which permits an unlimited number of students to listen to actual heart sounds through individual electronic stethoscopes. At the same time an electronic picture tube traces the electrocardiogram. The instructor may also make the heart sounds visible on the same screen. In addition, the face of the picture tube may be photographed to make permanent reference records of the tracings. Another teaching device is a plastic torso model containing an electronic heart. With this model various pathological heart conditions may be recorded on the cardioscope. Drs. Butterworth and Poindexter find a tape recorder a valuable help, making it possible for them to preserve a library of unusual heart sounds which may not be available for actual observation at the time students are studying cardiology. The student may also use the tape recorder to observe changes the heart undergoes during the process of disease or following corrective surgery for coronary malfunction.

British Medical Association
and
Irish Medical Association

JOINT ANNUAL MEETING, DUBLIN, 1952

THE SECTIONS

SUMMARY OF PROCEEDINGS

SECTION OF MEDICINE

Friday, July 11

Chemotherapy of Tuberculosis

The president, Professor HENRY MOORE (Dublin), was in the chair when Dr. VINCENT BARRY (Dublin) reviewed the therapeutic agents which had been used in the treatment of tuberculosis and leprosy. Diaminodiphenyl sulphone, the first drug to exert a suppressive effect on experimental tuberculosis, had been introduced in 1943, but was not of practical value because of its high toxicity to man. Streptomycin was the next drug to be discovered, and it remained by far the most effective drug in the treatment of tuberculosis. *Para*-aminosalicylic acid was now accepted to be of most use in preventing the development of streptomycin-resistance in tuberculosis. Thiosemicarbazone had very limited clinical application. The earlier observation that nicotinamide was effective *in vivo* against the tubercle bacillus had been overlooked, but the fact had recently been confirmed and had led to the discovery of pyrazinoic acid amide. Quite independently had come the discovery of the latest drugs, *iso*-nicotinyl hydrazine and its isopropyl derivative. Dr. Barry thought it was unlikely that these two drugs would prove as effective as early reports had suggested.

Dr. Barry then gave a brief account of recent work in his own unit, where two new agents had been evolved. One of these, a branched-chain fatty acid derivative, B.53, was proving effective in the treatment of tuberculous sinuses and tuberculous cystitis. The other compound, B.283, a red phanazine dye, had an antituberculous activity in mice and guinea-pigs. Encouraging reports from Nigeria suggested that this drug was having a curative effect in lepromatous and tuberculoid leprosy.

Peripheral Arterial Disease

With Professor J. M. O'DONOVAN (Cork), a vice-president, in the chair, Dr. R. SEMPLE (London) discussed some clinical problems in peripheral vascular disease, with special reference to obstruction of the abdominal aorta. In patients with intermittent claudication attention was usually focused on the leg arteries. The possibility of aortic or iliac obstruction was often overlooked; this was surprising, since Charcot's original description of claudication was based on such a case. The recognition of these cases was important because treatment and prognosis differed when the disease affected peripheral vessels. Atheroma with subsequent thrombosis caused the obstruction. Buerger's disease, if it existed at all, was a rare condition.

In 100 cases of intermittent claudication it had been possible to demonstrate aortic or iliac obstruction in 17. Distinctive clinical features were pain in the thighs and buttocks, a feeling of weakness or numbness on effort, and sometimes impotence. Examination of the femoral pulses was essential to the diagnosis, and wasting of the thigh was sometimes seen. The patients often suffered from coronary disease in addition. The diagnosis could be confirmed by aortography or by tonoscillography. The tonoscillograph was an instrument which automatically recorded arterial pulsations at a given site on a limb. In normal people there was an increase in pulsations after exercise, but when arterial obstruction was present the pulsations diminished or disappeared. In arterial obstruction above the groin this abnormal response could be recorded from the thigh. Lumbar sympathectomy was of little value in treatment, and the risk of gangrene was always present.

Treatment of Polycythaemia

Dr. R. BODLEY SCOTT (London) said that the cause of polycythaemia rubra vera was unknown and treatment empirical. It was pertinent to inquire whether the maintenance of a normal blood count relieved symptoms or prolonged life. Many symptoms could be attributed to associated conditions, of which vascular disease, gout, and renal calculus were common. Long observation was necessary to judge the efficacy of treatment, especially since death was seldom directly caused by the polycythaemic process. Until recently venesection and phenylhydrazine had been used; neither was satisfactory. Repeated bleeding or haemolysis stimulated the bone marrow, and often caused iron deficiency. Nitrogen mustard at the best produced a short remission. Radiotherapy by total body irradiation was more satisfactory, although cumbersome and protracted.

Dr. Bodley Scott then described the use of the radioactive isotope of phosphorus, P^{32}, which after being administered to a patient found its way to the bone marrow, liver, and spleen. In about 80% of patients it caused remission lasting for at least one year. In the remaining cases response was poor or treatment had to be stopped. Unfortunately acute myeloblastic leukaemia was more common after the use of P^{32}. Dr. Bodley Scott's personal experience confirmed the opinion that radioactive phosphorus offered the best means of controlling the disease; time would show whether it also prolonged life.

Virus Diseases

Professor V. M. SYNGE (Dublin) took the chair for two occasional papers on virus diseases. Dr. D. G. JAMES (London) spoke on virus pneumonia, which, he said, had ceased to be a therapeutic problem since the advent of aureomycin. The main difficulty was with diagnosis. In virus pneumonia the constitutional disturbance and radiological findings were out of proportion to the respiratory symptoms and signs. The viruses known to produce pneumonia were those of psittacosis, influenza, and Q fever. Other viruses were included in the "primary atypical pneumonia" group; in these infections the blood showed cold haemagglutination and non-specific agglutination against the streptococcus M.G. About one-tenth of clinical pneumonic infections in hospital practice were due to virus infection. Virus pneumonia had to be distinguished from simple aspiration pneumonia in which inflammation of a bronchopulmonary segment followed aspiration of infected material from the upper respiratory tract. If a patient with pneumonia failed to respond to treatment it was wise to reconsider the diagnosis and to exclude underlying disease, especially carcinoma, tuberculosis, or empyema.

Dr. P. N. MEENAN (Dublin), in discussing Bornholm disease, said that this was not a new disease, but it was of topical interest because of several recent epidemics. Little could be added to Pickles's original description of the clinical features. The acute onset, with upper abdominal pain and sweating, led to confusion with abdominal emergencies, and it required great courage not to operate in some cases. Diagnosis had sometimes to be made on epidemiological grounds. Pleural pain seemed to be commoner in adults than in children. Dr. Meenan then reviewed fully the association between Bornholm disease and the Coxsackie viruses. He concluded that the Coxsackie viruses included a large group of viruses whose homogeneity was only apparent. Time might show that there were several related viruses: it might then be possible to relate specific viruses to specific diseases.

Dr. W. N. PICKLES (Aysgarth), Dr. E. R. CULLINAN (London), Dr. R. BODLEY SCOTT (London), Dr. H. STANLEY BANKS (London), and many others took part in the discussion following these two papers.

Intragastric Neutralization Mechanism

With the president, Professor HENRY MOORE (Dublin), in the chair, DR. O. FITZGERALD (Dublin) described the urease mechanism of intragastric neutralization. The gastric mucosa resisted damage by local neutralization of the acid part of the gastric juice. Experimental work had shown that urease was present in the superficial layers of the gastric mucosa. Urease could break down enough urea into ammonia to neutralize all the acid normally produced by the stomach. It had been shown that this mechanism worked in the human body, and these principles had been used in the treatment of peptic ulcer. Taking urea by mouth lowered the gastric acidity without change in the volume or chloride content of gastric juice. Ammonia was formed from urea in the cells and not in the lumen of the stomach.

Urea had been used to treat 100 patients whose peptic ulcers had failed to respond to orthodox measures, and had been successful in 80%. As much as 120 g. could be given daily, and there were no untoward effects in spite of the mild uraemia induced. This form of treatment was particularly valuable in anastomotic and intractable duodenal ulcers.

In reply to questions from Dr. SEMPLE and Dr. CULLINAN Dr. FITZGERALD said there was no difficulty in getting patients to take large doses of urea. He was unable at present to assess the frequency of relapses in patients under treatment.

SECTION OF SURGERY

Friday, July 11

Causes of Dysphagia

With a vice-president, Professor M. G. O'MALLEY (Galway) in the chair, a discussion on dysphagia was opened by Professor F. J. HENRY (Dublin), who enumerated the various causes of this trouble and drew attention to the more important of the conditions to be discussed by subsequent speakers. In referring to the various rarer causes of oesophageal obstruction, he mentioned several anomalies of the aortic arch and great vessels. Subdividing cases of dysphagia into the painful and the painless, he emphasized that an impacted foreign body might cause no pain and sometimes no interference with swallowing.

Dr. C. P. PICKARD (Dundee) summarized the problems of radiological diagnosis, dealing especially with the many technical difficulties which the radiologist encounters. To detect minor abnormalities was often extremely difficult, and only great experience would enable the radiologist to be certain about the many variations in the normal appearance of the gullet. He spoke of the importance of co-operation by the patient, the selection of suitable radiopaque media in different types of case, the proper technique for screening at different levels, and the possible value of cine-radiography in the future.

Oesophagoscopy as a Diagnostic Aid

Mr. R. R. WOODS (Dublin) pointed out that oesophagoscopy was the most important single examination in cases of dysphagia. *X*-ray films were liable to be misleading in (1) early postcricoid carcinoma; (2) small malignant lesions of the oesophagus; and (3) certain cases of carcinoma in the upper part of the stomach where the appearances could mimic cardiospasm. All cases of cardiospasm diagnosed radiologically in patients over 40 should be regarded as possible new growths until proved otherwise. Biopsy and pathological diagnosis were essential before any radical operative procedure was undertaken.

Carcinoma was usually found at a somewhat higher level on exploration than at oesophagoscopy. The estimation of operability could be difficult and even misleading on endoscopy; a mobile tumour might be firmly adherent to the aorta, while a large fungating tumour with complete obstruction might subsequently be readily removed. Having mentioned certain points in the differentiation of cardiospasm and carcinoma, Mr. Woods went on to make a plea for the wider use of Souttar's tubes in cases of inoperable carcinoma. He liked very large tubes of stainless steel, and, in suitable cases, he believed them to be superior to any other palliative procedure. He concluded by saying that diagnostic endoscopy was not the perquisite of the ear-nose-and-throat surgeon, and he could not understand the mentality of anyone who did a major thoracotomy without having himself first examined the lesion through an oesophagoscope.

Congenital Atresia of the Oesophagus

Mr. R. H. FRANKLIN (London) discussed the fascinating problem of congenital atresia of the oesophagus, a condition mentioned in 1697, accurately described by Sir Arthur Keith in 1910, and first successfully treated in 1939. The incidence was probably 1 per 2,500 births, and, since there were frequently no other major anomalies, the importance of early diagnosis and operation needed no emphasis. Excess mucus in the pharynx, cyanosis, and failure to improve after aspiration were a triad of signs almost pathognomonic of this condition. The diagnosis was to be assumed unless disproved by the passage of a rubber catheter into the stomach: the arrest of the latter at 10 to 12 cm. was characteristic. The presence of gas in the gut proved that there was a fistula between the air passages and the lower segment of the gullet. Mr. Franklin numbered 13 successes among his cases and he now preferred the transpleural to the extrapleural approach. He referred to several points in the technique of operation and emphasized the importance of first-class anaesthesia.

Professor JOHN MORLEY (Manchester) then described his personal experiences in the management of 35 cases of pharyngeal pouch. This was a comparatively rare condition. He stressed the proper timing of treatment, there being no point in operating at a very early stage. In the larger pouches preliminary aspiration of the contents and washouts might be needed, and a neglected or gravely emaciated patient might require preliminary gastrostomy. In two long-standing cases of his there was an epithelioma in the pouch and no operation was possible; the remaining 33 cases had been successfully operated upon by excision in one stage. Other methods, such as a two-stage operation and invagination of the sac or its suspension, were futile. His personal preference was for a collar incision, exposing and defining the sac in the usual way. Correct excision and meticulous suturing were essential and were facilitated if the anaesthetist passed a large-sized bougie down the oesophagus. He used a two-layer continuous catgut suture which had to be inserted most precisely to obviate later fistula or narrowing. The treatment of such cases was best undertaken by the general surgeon, trained in the technique of intestinal suture. Professor Morley then described the post-operative management of these patients. There had been no deaths in his series, although two cases had a fairly severe fistula for a few weeks. The end results had been uniformly good.

Simple Stricture and Cardiospasm

Mr. G. H. WOOLER (Leeds) dealt with the problems of achalasia of the cardia, hiatus hernia, and fibrous stricture of the oesophagus. Wasting was not peculiar to carcinoma, and cachexia could be extreme in patients with cardiospasm. The majority of these cases were effectively treated by dilatation with a hydrostatic bag, and this could be done in the out-patient department. Hurst's mercury bougies were most unsatisfactory and made the patient unduly introspective about her condition. Advanced cases with an angulated or S-shaped oesophagus were difficult to treat by dilatation, and a large gullet tended to prolapse through the oesophageal hiatus.

Where dilatation proved ineffective or impossible it was the speaker's practice to perform a Heller's operation by the transthoracic approach, and in about a third of cases the oesophageal hiatus was also repaired. The thoracic unit at

Leeds had treated 108 cases of cardiospasm, 88 having been dilated with a hydrostatic bag: 14 of these patients subsequently needed a Heller's operation and two later developed ulceration of the oesophagus. Heller's operation had been done on 26 patients altogether: the results were generally very satisfactory, but in a few there was reflux of gastric contents and oesophagitis might develop.

Turning to hiatus hernia, Mr. Wooler said that at Leeds they had operated upon 158 out of 464 cases. The sliding hernia was more common than the para-oesophageal variety. In the latter type the cardiac sphincter was generally competent and oesophagitis occurred less often. Oesophagitis was present in 172 and stenosis of some degree in 141 of their 464 cases. The speaker believed that reflux oesophagitis was a serious condition, not to be neglected: when it was found in young children together with a hiatus hernia operation was urgently necessary. The transthoracic route was the method of choice. Mr. Wooler also discussed the subjects of gastric mucosa in the oesophagus, the so-called "short oesophagus," and the association of peptic ulcer and fibrous stricture. He mentioned indications for, and the problems of, radical resection in these cases.

Carcinoma of the Oesophagus

Mr. VERNON C. THOMPSON (London) spoke about the treatment of primary carcinoma of the oesophagus, which could be operated on if the diagnosis was not made too late. Gastrostomy would occasionally be justifiable in inoperable cases, but, wherever possible, a short-circuit should be done to restore normal swallowing. The very nature and location of the lesion, together with the direction of lymphatic spread, made radical resection virtually impossible. For all growths above the cardia he preferred to open the chest on the right side at the level of the anticipated anastomosis, having freed both curvatures of the stomach through an abdominal incision first. Pyloroplasty and stretching of the oesophageal hiatus were further steps in the abdominal part of the operation. The chest was opened through an intercostal incision and the azygos vein was divided before the oesophagus was mobilized. The approach from this side enabled a high exposure to be made; the aortic arch did not get in the way and it protected the opposite pleural cavity. The upper oesophagus did not need to be disturbed from its bed, and the operation seemed to offer other advantages in the immediate post-operative period. Reflux oesophagitis and regurgitation, complications of all forms of oesophago-gastrostomy, were less common with a high than with a low resection. Dilatation of the stomach and pylorospasm were prevented by pyloroplasty. For growths involving the cardia the standard left abdomino-thoracic approach was used, and this was a simpler operation.

The overall results of operation were depressing because of the high mortality and recurrence rate. Mr. Thompson's first oesophagectomy was in 1941, the patient surviving 2½ years. Forty-four other resections had been done, with an operative mortality of 27%. The longest survivor is still alive and well after six years. The results could never be very wonderful, but it was the surgeon's duty to palliate and few of the alternatives to major operation were satisfactory.

In subsequent discussion, Mr. N. C. TANNER (London) advocated the repair of hiatus herniae by the abdominal route, which had been very satisfactory in his hands. It was also a less severe operation in old people. He, too, had used the right-sided approach for high oesophageal carcinoma, and for those near the top he commended exposure through the bed of the resected anterior end of the third rib. A Ramstedt type operation had been perfectly satisfactory in preventing subsequent pylorospasm.

Mr. FRANKLIN commented on Mr. Wooler's emphasis on operative treatment of sliding hernia in childhood. Reflux of gastric contents was a physiological phenomenon, and great caution should be exercised in considering operation on these young patients. In any case, whatever the age of the patient, the majority of those with hiatus hernia and oesophagitis responded to medical management and in only a few was operation needed. In aged and frail people needing surgical treatment he had sometimes found that a Billroth I gastrectomy would relieve the symptoms by lowering the gastric acidity. Like Mr. Thompson he had favoured the right-sided approach to carcinoma of the mid-oesophagus, but had given it up because his patients seemed to be upset by the necessary change of position. Having reverted to the left abdomino-thoracic approach, he now made a second intercostal incision at a higher level to facilitate resection and anastomosis. He had begun to doubt whether resection should be attempted in the majority of old patients with carcinoma of the mid-oesophagus.

Mr. A. M. ABRAHAMS (Liverpool) asked Mr. Wooler whether the oesophagus always reverted to normal in his cases after Heller's operation. In reply, Mr. WOOLER said that if the operation had been properly done the oesophagus should return to near normal. It did depend, however, on the severity of the previous condition.

SECTION OF SOCIAL MEDICINE AND OCCUPATIONAL HEALTH

Friday, July 11

Preventive Medicine

With the president, Dr. ANDREW TOPPING (London), in the chair, Professor A. LESLIE BANKS (Cambridge) opened the discussion on the necessity for a preventive approach to medical practice. He said that the British National Health Service should be the subject of searching investigation, since no country could afford to spend without discrimination a third of its income on medical and social services. The time had come to consider drastic administrative changes.

The distinction between preventive and curative medical services was no longer tenable and the first need was to raise the standard of undergraduate and postgraduate training in preventive medicine. The hospital was now the focal point of the Health Service and it could with advantage take over much of the work of the local authority. And there was always a danger of local government taking action on party political lines instead of local needs. While the maternity and child welfare services had achieved remarkable results in the past, these services and the responsibility for the aftercare of tuberculous patients should be merged with the curative services and thus enable a vast army of health workers to be demobilized. Only a highly trained skeleton staff need be retained by the local authority.

In the original concept of the National Health Service the local authority, with its responsibility for health centres, was to be the bridge between the hospital and the general practitioner. It had not been possible to build these bridges, and general practitioners had opposed the plans for them. It would be better to put the health centres, where possible, close to or in the curtilage of hospitals. Local consultative committees could co-ordinate the three branches of the health service and simplify the administrative machine. The medical officer of health should play an important part in local administration, and it was unfortunate that there had been so little liaison between him and his clinical colleagues.

The Working Environment

Dr. RICHARD SCHILLING (Manchester) said that there were enormous resources for preventive medical work in hospitals and general practice. It was necessary to teach medical students to see things as a whole, to understand that their patients lived in a complex environment, and to think also in terms of sickness of the group as well as of the individual patient. There was a need for specialists; but specialism had done much to rip the guts out of general practice and destroy the comprehensive approach to illness. Problems of industrial toxicology had been largely responsible for the development of industrial medicine, and many had now been

solved, but recent studies of labour turnover, neurotic illness in factory workers, and disabled persons had shown that these problems could not be solved by the usual methods, which attempted to abstract the worker from the rest of his life and the factory from the rest of society.

Industrial health could not be achieved only by enforcing and maintaining legal standards of hygiene. In the last century the working environment was so blatantly corrupt that much could be done by applying the simple rules of hygiene in the Factories Acts, but there was now a need to combine as far as possible curative and preventive medicine inside industry, using the curative service to detect the many social environmental factors responsible for accidents and ill-health. Examples were given to show how this had been attempted in an engineering works. Much of industrial medical practice should be done by general practitioners who had been trained as medical students and postgraduates for this type of work.

Preventive Medicine in General Practice

Dr. J. J. MCCANN (Dublin) said that the application of preventive medicine in general practice was an old art, but the State had taken over much of the preventive work. Nevertheless it was not good enough to use doctors merely as diagnostic mechanics in the investigation of disease, for this destroyed the close patient–doctor relationship which was essential to an understanding of the social and family background. Preventive medicine implied the recognition of early signs of disease, and the family doctor was in the best position to detect these. General practice and the personal preventive services, such as maternity and child welfare, were developing along increasingly divergent courses, and it was necessary to bring them together again. Although there had been great social changes in the present generation, human nature had not changed and man still needed a personal relationship with his doctor which instilled confidence and friendship.

Dr. J. A. HARBISON (Dublin), speaking as the medical officer of health for Dublin, endorsed the remarks of the previous speaker. He said that he thought it was essential to change the curriculum of the medical student, who needed more than anything else to see the home background of sick people. It was also necessary to encourage the interest of the general practitioner in research. The delay in applying the results of research was too long, but this could be overcome to some extent by bringing the general practitioner into closer association with research work. The Royal Colleges of Physicians and Surgeons had old foundations in these islands, and some day there might well be a royal college of general practitioners.

Dr. BRIAN PRINGLE (Dublin) said that it was essential to convince the worker of the benefits that medicine could bring to industry. The pre-employment examination gave excellent opportunity for health education and for detecting disease in all forms. The falling-off of work capacity was often the first sign of disease, and this gave the industrial medical officer an early opportunity of detecting it.

The president, Dr. ANDREW TOPPING, gave some colourful examples to illustrate the failure of local authorities to apply obvious preventive measures where they were needed. Miss ETHEL COHEN (head social worker, Beth-Israel Hospital, Boston, U.S.A.) stressed the need for the social point of view in medical education. It was not only general practitioners who should consider the patient as a whole: even specialists could be conditioned to think in that way. Social problems caused by family difficulties existed at every economic level and were by no means confined to poor families.

Dr. JOHN F. EUSTACE (Dublin) said that psychosomatic disorders, influenced by factors at home and at work, were important causes of absence from work, and in certain departments of factories these disorders were aggravated by unsatisfactory human relations: where possible it was the duty of the industrial medical officer to try to put these right.

SECTION OF OTO-RHINO-LARYNGOLOGY

Wednesday, July 9

Antibiotics in Oto-rhino-laryngology

With the president, Mr. T. O. GRAHAM (Dublin), in the chair, Mr. R. B. LUMSDEN (Edinburgh) opened a discussion on antibiotics in oto-rhino-laryngology. In general, penicillin was still the antibiotic of choice, he said, particularly in acute otitis media, because of the relative infrequency of undesirable side-effects. But it was disappointing to find that bacterial resistance, either natural or acquired, was developing, particularly in staphylococci. He therefore advocated giving maximum dosage at the outset, but then only when there were real indications. The organisms should be identified as soon as possible, and the antibiotic withdrawn if not then deemed suitable or if there was no clinical improvement after 48 hours.

He drew attention to toxic reactions in the mouth from local penicillin, the development of fungus infections during administration of chloramphenicol or aureomycin, untoward vestibular and cochlear effects from streptomycin, and particularly deafness from dihydrostreptomycin. He considered the prophylactic administration of penicillin to be justified in such conditions as acute rheumatism or nephritis during removal of a septic focus, but thought it unnecessary for an aseptic operation such as fenestration. He did not think local penicillin had a place in the treatment of diffuse otitis externa. In acute otitis media it was important, while giving penicillin, not to neglect the older surgical principles, and the drumhead must be repeatedly inspected and hearing tested as a check on progress. The masking effects from partial control of infection were stressed. If there was severe pain after 24 hours the drum should be incised; and if it appeared persistently thickened and full it should likewise be incised, lest exudate remain in the middle ear to organize later.

Mr. T. G. WILSON (Dublin) commented on the apparent diminution in virulence of the infecting organisms during the past 15 to 20 years. This was noticed even in patients coming from remote country districts where antibiotics were not in general use. He warned against complacency, since virus infections seemed to be replacing bacterial. It was important not to give streptomycin prematurely, lest resistance develop and prevent its use in later, more severe complications in lung or meninges. The use of P.A.S. concurrently helped to prevent resistance from developing.

Mr. M. A. O'BRIEN (Cork) commended the local administration of chloramphenicol solution in the treatment of acute and chronic otitis externa. In cases of chronic suppurative otitis media (in the absence of cholesteatoma) he first cleared up debris with urea-containing drops, and then followed with chloramphenicol. Terramycin drops were good, but unstable. In treating post-operative mastoid cavities he insufflated 5% chloramphenicol in lactose. In acute sinusitis he condemned early displacement treatment with antibiotics, since it probably spread infection, but after seven days or so it was most useful. In chronic sinusitis such displacements were of more doubtful value. He preferred to fill the antra with a paste after lavage, and, if such treatment failed, to perform the Caldwell–Luc operation.

Discussion

In the ensuing discussion Mr. W. H. B. MAGAURAN (London) mentioned the value, in cases of chronic infection, of instilling antibiotics into the frontal sinus through a small opening in the floor, thus obviating the more radical operation.

Mr. F. C. W. CAPPS (London) agreed with Mr. Lumsden on the advisability of withholding antibiotics unless there was a clear indication, citing a case of severe infection in which penicillin could not be used because sensitivity had been previously induced by unnecessary administration.

Mr. R. R. WOODS (Dublin), discussing acute otitis media, said the questions one must ask were: (1) Has pus formed? (2) If so, is there a way for it to escape? He thought the

dangers of a chronic adhesive process developing as a result of antibiotic therapy had been exaggerated.

Mr. W. A. MILL (London) thought it wise always to give penicillin prophylactically in radical sinus operations to ensure against osteomyelitis.

Mr. A. J. E. BLANEY (Galway) cited cases of masking, and thought lavage with penicillin and chloramphenicol useful in sinusitis.

Mr. T. J. WILMOT (Omagh) asked when was the optimum time for giving penicillin in osteomyelitis.

Mr. L. J. CURTIN (Dublin) said that in infants under 2 years old penicillin was all that was required, even when there was swelling over the mastoid. In older patients each case must be treated on its merits.

In reply Mr. LUMSDEN agreed with Mr. Woods about the rarity of development of a chronic adhesive process from antibiotics. He found it difficult to lay down rules about the optimum time for treatment of osteomyelitis by penicillin.

Ménière's Syndrome and Simulating Conditions

With a vice-president, Mr. F. C. W. CAPPS (London), in the chair, Mr. C. S. HALLPIKE (London) then opened a discussion on Ménière's syndrome and simulating conditions. The essential feature of the condition was distension of the endolymph vesicle, though the precise cause was still unknown. It was possible to assess the nature and severity of the inner ear lesion. The systematic caloric tests he had used since 1942 were described and the possible results shown on a chart, with their interpretations. Cochlear function was assessed by the recruitment tests of Fowler. The most important simulating condition was positional nystagmus.

Of importance in making a diagnosis were, first, the patient's story, and, secondly, the induction of nystagmus by lowering the patient's head and turning it quickly from one side to another. In most cases there was no abnormality in the hearing or in the caloric tests. In a few cases changes were seen in the drumhead, probably due to past middle-ear infections. The course was essentially benign; there were no neurological lesions, the degenerative change occurring in the macula of the utricle. Sedatives were the only treatment indicated.

Mr. E. R. GARNETT PASSE (London) said that differentiation between peripheral and central vascular lesions was not easily made. He divided the syndrome into its component symptoms: (1) labyrinthine, (2) cochlear, (3) reflex vegetative. Thus they included vertigo and nystagmus; deafness and tinnitus; and vomiting, pallor, sweating, and tachy- or brady-cardia. Almost always, too, there was a large psychological overlay. The attack was probably precipitated by sudden increase in tension of the endolymph. Production of this fluid was assumed to be by diffusion, or active secretion from the stria vasculosa. As there was no secretory gland tissue in the stria, the only mechanism must be increased permeability of the labyrinthine vessels, which were under the direct control of the vegetative nervous system. The sympathetic–parasympathetic balance might be upset by a variety of irritative lesions. This it was supposed could cause actual spasm which altered the permeability of the smaller vessels. This view would seem to be supported by the encouraging results of over 200 sympathectomies performed in the past six years. He hoped that experiments now being conducted on animals would clearly show that the sympathetic had a direct relationship to endolymph production. The other vascular lesions causing vertigo could be classified as (1) peripheral, (2) central, and (3) combined peripheral and central, and he described vertigo arising from endartery embolism, from hypertension, anaemias and leukaemias, and arteriosclerosis.

Clinician's Viewpoint

Mr. F. A. MACLAUGHLIN (Belfast) was more concerned to stress the clinician's viewpoint. He found it difficult to define the scope of simulating conditions. He did not propose to include those cases secondary to oral suppuration or occurring in the course of otosclerosis. Trauma could play a large part, whether by clumsy syringing of ears, blows, concussion, etc., even if caused by loud explosions. In these cases treatment was difficult, because the site of the lesion could not usually be ascertained. He next described the various tumours associated with the eighth nerve, and the signs and symptoms each variety might produce. In the early stages there might be no neurological signs, only cochlear and vestibular signs being elicited. Vertigo could sometimes occur in migraine and in abnormal psychological states.

Various toxaemias might be causative, especially those due to quinine or streptomycin. Treatment should be by sedatives or antispasmodics and should include treatment of any local inflammatory condition in outer or middle ear, search for infective foci in the upper respiratory tract or elsewhere, special measures such as avoidance of sodium or reduction of fluid intake, and finally surgery.

Mr. CAPPS asked why cases showing such gross pathological changes, as in Mr. Hallpike's sections, had such long intervals of freedom from attack.

Mr. R. R. WOODS (Dublin) congratulated Mr. Hallpike in particular on his lucid exposition of the subject. He found it very difficult to determine the exact moment when nystagmus stopped. In his experience most cases were cured or controlled by conservative means, and he had found surgery necessary only in a tiny minority. He asked if one could exclude Ménière's syndrome if the caloric and cochlear tests were quite normal.

Mr. W. A. MILL (London) asked what was the explanation of vertigo occurring in patients with acute antrum infections. There was no Eustachian obstruction, and no hearing defect.

Mr. HALLPIKE, in reply, said that these were probably cases of toxic vestibular neuronitis. In reply to Mr. Woods he would assert that if the tests were normal then Ménière's syndrome was out of the question.

SECTION OF PSYCHIATRY

Friday, July 11

Psychiatric Disorders of Later Life

With the president, Dr. DESMOND CURRAN (London), in the chair, Dr. R. S. ALLISON (Belfast) opened a discussion on the psychiatric disorders of later life. He drew attention to the aetiological importance in acute confusional states in this age group of certain toxic and biochemical factors which are not always recognized—e.g., dehydration (especially after operation and anaesthesia) and alkalosis resulting from the taking of too many stomach powders by hypochondriacal patients. A case was described in which cortical atrophy followed repeated haematemeses, the brain damage being attributed to anoxia. Repeated hypoglycaemic attacks in elderly diabetics might lead to symptoms similar to those of senile dementia, and to prevent this the speaker suggested that the blood sugar in such cases should be kept reasonably high. Difficulties in the diagnosis of cerebral tumour often arose from the absence of headache and papilloedema, and the discovery of field defects might sometimes help in distinguishing tumours from vascular lesions. The so-called "parietal signs" in confusional states were as often related to the presence of clouded consciousness as to the presence of a focal lesion, and they often resolved when consciousness became clear.

Prognosis

Dr. MARTIN ROTH (Chichester) reported on the natural history of five groups of elderly patients—those with affective and senile psychoses, paraphrenics, and those with arteriosclerotic and confusional psychoses. Psychological tests were used to aid and confirm the clinical distinctions between the groups. Sixty per cent. of patients with affec-

tive illnesses were able to leave hospital within six months of admission, whereas 60% of the senile dementia cases were dead. The arteriosclerotic cases showed a rather more even distribution between recovery, death, and continued residence in hospital, while those with confusional states tended either to recover or to die, and relatively few remained alive but still in hospital. Among the small group of late paraphrenics the largest number remained as in-patients; of this group 85% showed the first signs of their mental illness after the age of 60. Apart from the prognostic importance of these distinctions, they should help to determine the planning and siting of geriatric units—these units should be designed to cater for specific clinical groups and sited so as to have full facilities for special treatments available for recoverable cases.

Professor J. DUNNE (Dublin) mentioned a patient in whom excessive self-administration of ephedrine had caused an anxiety state. Dr. K. C. BAILEY (Taunton) thought that myxoedema was more often a causative factor than was generally realized and also that many of the senile patients with affective psychoses had probably had minor and sometimes unrecognized attacks earlier in life. Dr. E. A. BENNET (London) held that psychoneuroses in later life were not uncommon in patients who had been neurotic in adolescence and then made a working adjustment allowing them to lead successful lives. In later life this adjustment failed and these patients could respond to psychotherapy. Dr. R. H. MOORE (London) reported his experience of cases where removal to hospital and the immediate institution of heavy sedation had led to rapid deterioration and death. Dr. ALLISON in reply confirmed the danger of sedation.

The Psychiatrist and Compensation Neurosis

Professor J. DUNNE (Dublin), opening this discussion, said that compensation neuroses did not differ from neuroses in which no compensation but only the desire for treatment was involved. The psychiatrist's essential duty was to make as accurate a diagnosis as possible of the illness—whether neurasthenia, hysteria, obsessional, or anxiety state—and to assess the contributory and precipitating factors. Predisposition was always present and consisted in a susceptibility to disease which remained latent under normal conditions but could be activated by a particular stress. Only the mildest cases and malingerers recovered after the settling of a compensation claim; the course of more serious cases was not affected. It was wrong that a judge or jury should have to decide between the often differing opinions of medical witnesses. Such delicate decisions as have to be made by the Court could be made only by a properly constituted panel of specialists in neuropsychology.

Dr. F. MCLAUGHLIN (Dublin) said that opinion varied on whether the compensation allowed by the Irish Courts was fair to the patient—among lawyers he had consulted the opinion was that in 70–80% of cases it was fair, while medical opinion put the figure at 50–60%. It was interesting that "neurosis" was claimed in 30–40% of Common Law cases and in only 1% of cases under the Workmen's Compensation Act. This was probably because no lump sum can be awarded under the Workmen's Compensation Act, but only a maintenance grant. He mentioned the very high third-party insurance premiums paid by motorists in Eire as compared with England, and attributed this to the absence of a speed limit in Eire and perhaps also the absence of a driving test. He thought that a jury would often give a fairer award to plaintiffs in compensation cases than many neurologists and psychiatrists. He described two personal cases in which the relative importance of predisposition and precipitating stress had been carefully weighed by the Court, with the consequent award of a large and a relatively small sum respectively.

A Lawyer's View

Mr. H. J. BAXTER (London), after exercising the lawyer's right to pull the psychiatrists' legs, explained that the Court's function is to assess liability and, if that is established, the amount of reparation; this it could do only with the help of expert medical witnesses. These witnesses, if they knew their subject and gave evidence clearly and honestly, always had the advantage over counsel. Nevertheless, psychiatrists should try to educate the public and the legal profession in the principles of their subject if they hope to be better understood. It had long been axiomatic in the Courts (on the repeated evidence of doctors) that there was such a thing as compensation neurosis—a condition that would improve when litigation was completed. If Professor Dunne's views were correct a re-education of doctors, public opinion, and the lawyers would be called for.

Dr. M. DYER (Galway) said that neurotic complications were very rare if not unknown after injuries incurred in the game of hurling (apparently an anarchic form of hockey), which was played in his district. He had noticed that a psychiatrist's opinion was now nearly as often insisted upon as a radiograph in cases of injury, and it was apparent that the financial value of such an opinion had come to be appreciated by many claimants. The general practitioner's knowledge of his patients and their background helped greatly in making a correct assessment.

Mr. A. A. MCCONNELL (Dublin) described the investigation of patients with head injuries whose headache persisted after the compensation claim had been settled. In these cases there was a tear in the arachnoid membrane which allowed the escape of cerebrospinal fluid into the subdural space. The fluid could be removed through a burr hole, with subsequent relief of intracerebral tension and loss of headache.

SECTION OF OPHTHALMOLOGY

Friday, July 11

Childhood Problems in Ophthalmology

The president, Mr. J. W. TUDOR THOMAS (Cardiff), was in the chair and there were approximately 70 members present. Dr. T. M. KAVANAGH (Dublin), the opening speaker, dealt with ocular defects in systemic disease and gave many examples of systemic diseases which showed characteristic changes in the eye. Among congenital disorders in this category were mongolian idiocy, amaurotic familial idiocy, and albinism. Diseases of the central nervous system commonly showed such signs as papilloedema or paralytic squint or nystagmus; exophthalmic goitre was not uncommon in childhood, while enophthalmos was seen in cases of dehydration and wasting. Blood dyscrasias caused ocular haemorrhages, and nephritis gave a characteristic ocular picture. Among infective diseases with ocular signs were congenital syphilis, tuberculosis, chicken-pox, measles, diphtheria, and whooping-cough.

Mr. A. G. CROSS (London) spoke on congenital abnormalities in relation to pregnancy. He pointed out that it was only in recent years that the maternal origin of certain important ocular conditions in the newborn had been recognized. Interstitial keratitis was due to congenital syphilis, but was not a direct effect of *Treponema pallidum* because it did not respond to any antisyphilitic treatment and was self-limiting: cortisone was proving effective against it. Toxoplasmosis, an infection of the foetus by the toxoplasma through the maternal circulation, affected particularly the brain and eyes, and the characteristic ocular picture was a posterior choroido-retinitis. The association of maternal rubella with congenital cataract and other ocular abnormalities such as buphthalmos raised the problem of therapeutic abortion. In retrolental fibroplasia, which affected premature children, fibrous tissue formed behind the lens. The cause was unknown, but the fact that it was a new disease suggested that we should look for some recent factor, possibly a therapeutic innovation, as being responsible.

Mr. L. B. SOMERVILLE-LARGE (Dublin) discussed the first year of life and covered a wide range of personal observations, including a peculiar form of conjunctivitis in which the discharge resembled cotton-wool and which responded easily to treatment; trichiasis seen in overnourished babies and not requiring treatment; two cases of post-natal proptosis which underwent spontaneous cure; angiomata in which his advice was to avoid surgery; epicanthus as a cause of apparent squint—but one should not exclude a real one too confidently; retinal haemorrhages due to birth trauma, which were more common than was recognized; buphthalmos, which accounted for 16% of the blind-school population; and a case of panophthalmitis due to an infected cord. He agreed with Mr. Cross that retrolental fibroplasia was a new disease. He emphasized its importance by pointing out how it was swelling the population of blind schools.

Squint

Mr. H. E. HOBBS (London) discussed squint. He summarized the development of binocular vision, which was achieved during the first six to eight years of life by the imposition of conditioned reflexes of increasing refinement upon the apparently aimless movements of the eyes of the newly born. The process might be interfered with by a number of obstacles which were classified as sensory (such as ptosis or opacities of the media), dioptric (such as refractive errors), motor (such as muscle palsies), or central. Modern practice aimed, therefore, at the early correction of squint in order to remove whatever obstacle was present and enable normal reflex development to occur. It was in the dioptric and motor groups that most remediable defects were to be found. Spectacles could be prescribed during the second year of life, and evidence was accumulating which supported operative treatment even at this early age, particularly of course if a primary motor obstacle was present.

Mr. P. MCG. MOFFATT (London), who discussed the blind and partially sighted child, said that the fall in the incidence of blindness due to ophthalmia neonatorum and other infective causes was being counterbalanced by the appearance of retrolental fibroplasia and other factors which promised a serious problem in blind-school accommodation. He told how children were classified according to their suitability for education in a normal school, a partially sighted school, or a blind school. He traced the course of a blind child through the Sunshine Home Nursery School (2–7 years), the primary school (5 or 7 to 11 or 12 years), and thence to a secondary modern school or a grammar school. The curriculum at these schools followed as nearly as possible that at schools for normally sighted children, except, for instance, that reading and writing had to be by Braille. Grammar-school pupils went on to universities or professions; those from the secondary schools to such occupations as typewriting, piano tuning, telephony, etc.

The aim of schools for the partially sighted was to help the children to use what sight they had to their best advantage. This was done by the aid of large print for the young and of magnifying lenses for the older children. At both blind and partially sighted schools handicrafts naturally played a large part, and outdoor activities, such as games, scouting, and holiday camps, were strongly encouraged.

In the general discussion Dr. D. A. T. TIZARD (London) said that the incidence of cataract after maternal rubella was exaggerated. Three out of four affected mothers gave birth to normal children.

The Red Eye

Dr. F. S. LAVERY (Dublin), a vice-president, took the chair for the second half of the Section meeting, at which the subject for discussion was the red eye. The opening speaker, Mr. MAURICE H. WHITING (London), discussed the classification of redness of the eye in general and took as his theme the importance of careful naked-eye examination, by which, in the majority of cases, details could be observed leading to a diagnosis not only of the nature of the condition but of its cause. For example, in the case of conjunctival injection due to infection, observation of such features as the type of discharge and the presence of haemorrhages, chemosis, etc., frequently gave a clue to the causal organism. Again, chemical injury by mustard gas gave a characteristic clinical and diagnostic picture, and another example was the typical injection of the lower fornices which occurred in conjunctivitis artifacta.

Mr. J. W. BISHOP (Coventry) discussed the treatment of redness due to conjunctivitis and keratitis. He first considered maltreatment, which often arose from ignorance on the part of the patient about what was expected of him. As examples he cited the dirty handkerchief or the celluloid shade covering the infected eye, an old-fashioned but not yet quite defunct remedy known as No. 1 eye drops, and boric lotion, which was an irritant and might cause sensitivity. As regards new drugs, the speaker preferred sulphacetamide drops or ointment as his main standby for external infection, and propamidine when the other was ineffective. He disapproved of penicillin and other antibiotics except in serious cases and where their use was indicated by bacteriological tests.

Professor CONOR O'MALLEY (Galway) discussed redness due to uveitis. Uveitis following trauma was always serious because of the possibility of sympathetic ophthalmia, even when there was no obvious penetrating wound. The aetiology of endogenous uveitis remained obscure, and, though septic foci should always be looked for, the search was often fruitless. In treatment early mydriasis was important. It was often delayed by general practitioners because of the danger, which the speaker thought was overstressed, of causing glaucoma. Among older remedies leeches had departed, salicylates and protein shock still had their places, and now a powerful remedy, cortisone, had appeared on the scene.

Mr. S. J. H. MILLER (London) discussed redness due to glaucoma. It was not sufficiently well recognized that redness and photophobia were early signs of congenital glaucoma, which should be suspected when they occurred repeatedly in a young baby. In acute congestive glaucoma redness was one of the principal features, and the point emphasized here was the differential diagnosis of acute glaucoma from other causes of a red eye, especially conjunctivitis and iritis. Subacute intermittent congestive glaucoma caused slight redness. Its most important features, however, were its periodicity, the appearance of coloured haloes round lights, and the fact that between attacks the eye was usually normal, which explained why these cases were often missed. In chronic simple glaucoma redness was conspicuous by its absence, as were, in fact, any symptoms until commonly the condition was far advanced. Routine careful examination of the optic disk was the only means whereby these cases could be consistently discovered.

Dr. L. E. WERNER (Dublin) discussed redness due to injuries. He emphasized that redness was not always proportional to the severity of the injury. For example, a superficial abrasion caused marked redness and pain, while after a penetrating injury there was often little reaction at first. After a severe contusion the initial phase of vasoconstriction might last for 24 hours or more before congestion or even intraocular haemorrhage intervened; in the case of burns it might be said that the whiter the eye the more severe the injury, owing to the destruction of superficial vessels. Among points of treatment the speaker emphasized cautious use of mydriatics and protein shock in cases of intraocular haemorrhage; local rather than systemic use of antibiotics, since these if given by mouth shared with sulphonamides the risk of reducing intestinal flora and thus lowering vitamin absorption; the use of conjunctival grafts after severe burns; and the use of cortisone for sympathetic ophthalmia.

SECTION OF RADIOLOGY

Friday, July 11

Radioactive Isotopes in Diagnosis and Therapy

With Dr. T. G. HARDMAN (Dublin) in the chair, the president, Professor J. S. MITCHELL (Cambridge), opened a discussion on the "Use of Radioactive Isotopes in Diagnosis and Therapy." He stressed the importance of getting quantitative information about the metabolism and distribution of any radioactive material used clinically, so that the radiation hazard to the patient could be assessed. He then mentioned some of the practical problems of organization. Everyone concerned in the handling of radioactive isotopes, from the preparation of the dose to the nursing of the patient and the disposal of radioactive excreta, must be adequately protected against radiations. The methods of protection employed would depend on whether the isotope was used in the microcurie amounts usual for diagnosis, in the millicurie amounts given internally for treatment, or as an external source of radiations, when curies or even kilocuries might be necessary. Whatever the methods adopted, they should be simple and safe, and their effectiveness should be frequently checked. He said that most of the diagnostic work had, up to now, been done with I^{131}, P^{32}, and Na^{24}, but it was likely that C^{14} would be used much more in the future. Because of the long half-life of C^{14} (5,700 years) people had been afraid of giving it internally to humans, but recent research now suggested that C^{14} could safely be used in tracer amounts for clinical investigation. On the basis of this recent work he suggested that the following maximum total amounts could be regarded as safe: (*a*) For adult patients with less than five years' expectation of life: 1 millicurie as bicarbonate; 500 microcuries as acetate or glycine; 100 microcuries as essential amino-acids. (*b*) For patients not seriously ill and for normal volunteers, the above levels must be reduced by a factor of 10.

Dr. C. W. GILBERT (Manchester) described some of the elementary properties of radioactive isotopes and gave examples of the various diagnostic tests in which the isotopes were used. They could be used to follow the metabolic cycle of an element, to measure the blood volume, or the rate of flow in some part of the circulatory system, or to locate tumours in which a particular element was highly concentrated.

Beta-ray Applicators

Mr. H. FREUNDLICH (Bristol) said that P^{32}, Sr^{90}, and Ce^{144} had been used for making beta-ray applicators suitable for the treatment of superficial lesions. He compared the merits of applicators made with each of these elements. P^{32} did not emit gamma-rays, but the intensity of its beta-rays was halved by only 1 mm. of tissue. The beta-rays of Ce^{144} and its daughter products were more penetrating, but some gamma-rays were also emitted. Sr^{90} was rather more difficult to prepare than the other two. The applicators could be made very easily by soaking pieces of filter paper in a solution of the radioactive material and then covering the filter paper with cellophane; or, in the case of P^{32}, by incorporating P into polythene moulds and irradiating them in an atomic pile. He then described the uses of Co^{60} and Ir^{192} as gamma-ray sources in interstitial needles or surface applicators. Both these elements had also been used in the construction of teletherapeutic units. Finally, he dealt with the uses of Au^{198}, Br^{82}, and Ta^{182} in the treatment of intracavitary lesions. The last two were especially valuable in treating cancer of the bladder. Au^{198} could be given by local injection into tumours.

Dr. R. J. WALTON (London) described the system in use for treating patients with radio-isotopes at the Royal Cancer Hospital. After the patients have been selected for isotope treatment, their further care and follow-up are controlled by radiotherapists who work in close conjunction with physicists. The patient is seen by the radiotherapist at an isotope clinic which contains all the equipment necessary for storing and dispensing the radioactive doses and for making measurements on the patient. The dose is given in a separate room to lessen the chances of contaminating laboratories and wards. For in-patients there are two wards, each with three beds, and one single-bedded room for patients who have received very large amounts of a gamma-ray emitting isotope. Excreta containing short half-life isotopes are stored in the hospital until the radioactivity has fallen to a level which makes local disposal safe. Excreta containing long half-life isotopes are taken out of London and put down a concrete-lined well set apart for this purpose.

Mr. T. P. MORLEY (Manchester) described the use of P^{32} in neurosurgery. All types of cellular intracranial tumours, both primary and secondary, take up more P^{32} than does the surrounding normal brain tissue. The local concentration of P^{32} which is present in a tumour soon after a test dose can be located by noting the rise in counting rate when a Geiger–Müller tube is placed within a few millimetres of the tumour. The probe of the G.–M. tube used in this work is no thicker than a brain cannula of average size. The radiation hazard to the patient is negligible and the apparatus is easy to sterilize and to handle in an operating theatre. The method is of particular value when the surgeon is taking biopsy specimens through a small burr hole.

Dr. M. BENNETT (Cambridge), discussing the use of radio-isotopes in external applicators, said that P^{32} had been used to treat intra-epidermal carcinoma, basal-cell carcinoma, hyperkeratosis, and verrucae. It was also useful for treating angiomas in young children. Applicators containing Sr^{90} had been used extensively in America for treating superficial lesions of the eye. With an applicator containing 50 millicuries of Sr^{90} of high specific activity, it is possible to give useful beta-ray doses in a very short time without any associated gamma-radiation. He mentioned the use of Co^{60} and Ir^{192} in gamma-ray applicators.

Use of Radiogold

Dr. D. J. RIORDAN (Dublin) described the work that had been done with radio-isotopes at the Royal City of Dublin Hospital. He had found Au^{198} to be the most generally useful isotope in the treatment of cancer. The Au^{198} was given as a colloidal suspension, either intravenously for widely disseminated growths, or by local injection into the tumour itself. Patients selected for intravenous radiogold treatment had included cases of myelogenous leukaemia, Hodgkin's disease, lymphosarcoma, and seminoma. Those given local injections included cases of parotid tumour, cancer of the breast and cervix uteri, and secondary cancer in the glands of the neck. He had noted that the local injection of radiogold was often followed by the appearance of cysts containing sterile fluid. He had found that P^{32}, when used in a polythene external applicator, tended to be very unevenly distributed through the plastic. He was investigating the possibilities of using agar-agar as a vehicle for the P^{32}.

Mr. G. W. BLOMFIELD (Sheffield) discussed the use of radio-iodine in therapy and diagnosis. He described the metabolic cycle of radio-iodine in normal and thyrotoxic people and showed how the more rapid rate of metabolism of radio-iodine in thyrotoxicosis could be detected. Several radio-iodine tests of thyroid function were available, and he had found that the most reliable one was based on the plasma concentration of radio-iodine at 48 hours after the dose. Radio-iodine was useful in the treatment of well-differentiated thyroid cancer with metastases, certain cases of thyrotoxicosis, and patients with heart disease who benefited by being made myxoedematous. He considered that radio-iodine should only be used in thyrotoxicosis for elderly patients, or those with recurrence after operation, or those in whom other forms of treatment were unusually dangerous.

Professor MITCHELL then opened the discussion by asking Mr. Morley what he thought were the relative values of P^{32} and diiodofluorescein in brain tumour localization. Mr. MORLEY said that the equipment required for P^{32} was much simpler and less expensive. He added

that P^{32} was probably not suitable for treating tumours of the brain because an effective radiation dose could never be delivered to the tumour without seriously damaging the bone marrow.

Dr. O. CHANCE (Dublin) said that great care must be taken in the selection of patients for treatment by P^{32} beta-ray applicators. Unless the lesion was very superficial the deeper parts might be beyond the range of the beta-particles. Professor MITCHELL, agreeing, considered that P^{32} should only be used for benign lesions, especially those of the eye and those over epiphyses in children. He emphasized the very patchy distribution of P^{32} in an applicator, as disclosed by autoradiography. This made it difficult to deliver the same radiation dose to all parts of the lesion.

Mr. BLOMFIELD said that he had seen one case in which severe exophthalmos had improved after radio-iodine treatment to the thyroid. Professor MITCHELL had several times found that the exophthalmos of Graves's disease appeared to increase after radioiodine treatment. Other speakers mentioned the difficulty of distinguishing between spontaneous changes in the degree of exophthalmos and changes brought about by the treatment. Dr. GILBERT, referring to Mr. Blomfield's paper, said that the output of radio-iodine from the thyroid in thyrotoxicosis often failed to follow a simple exponential law. This might be due to the effect of radio-iodine recirculating from the tissues as iodide, and taken up again in the thyroid.

SECTION OF TROPICAL MEDICINE

Friday, July 11

Bowel Infections in the Tropics

With the president, Professor H. E. SHORTT (London), in the chair, Dr. A. R. D. ADAMS (Liverpool) opened a symposium on the chemotherapy of tropical diseases by discussing the treatment of bowel infections in the Tropics. In bacillary dysentery British practice had been to prefer one of the relatively unabsorbable sulphonamides, such as sulphaguanidine, succinylsulphathiazole, or phthalylsulphathiazole, though the Americans often used sulphadiazine. The correction of dehydration and the alkalization of the urine were important when using absorbable sulphonamides, as with these there was danger of crystalluria and renal blockage. In cholera the vibrios multiply so rapidly that chemotherapy would probably be too late to be useful. Concerning amoebic dysentery, he said that it was unwarrantable to ascribe to an *Entamoeba histolytica* bowel infection a limitless range of indeterminate symptoms remote from the abdomen. For bringing an acute attack under control emetine hydrochloride given intramuscularly for a few days was still unequalled. To eradicate the basic intestinal infection a combination of drugs had proved effective in all but a minority of cases. Dr. Adams discussed particularly the antibiotics, aureomycin and terramycin. The degree to which they were claimed to be effective varied widely, and one worker had found terramycin completely ineffective in sterilizing bowel infections due to *E. histolytica*. In a personal series, however, aureomycin had cured 23 out of 27 infections and terramycin 46 out of 49. Those not cured had responded satisfactorily to courses of one of the older amoebicidal drugs given with an antibiotic. It was concluded that aureomycin and terramycin were useful additions to the range of amoebicidal drugs; their main value appeared to be their capacity, when given with older amoebicides, to eradicate the occasional refractory infection. They did not, however, give results superior to those obtained with the older combined course of treatment, and at present their indiscriminate use in ordinary cases of amoebiasis was not recommended.

Professor A. W. WOODRUFF (London) supported Dr. Adams's views on unsystematized symptoms sometimes attributed to an amoebic bowel infection. He believed that these were often neurotic manifestations. He welcomed Dr. Adams's conclusions regarding the indiscriminate use of antibiotics in amoebic dysentery. At the Hospital for Tropical Diseases, London, five out of ten patients had relapsed within six weeks of the completion of treatment with aureomycin. Dr. W. P. H. SMILEY (Belfast) stressed the importance of only adequately trained technicians being employed in the identification of protozoa.

Malaria and Trypanosomiasis

With Dr. E. T. FREEMAN (Dublin) in the chair, Dr. L. G. GOODWIN (London) read an occasional paper on the chemotherapy of malarial and trypanosomal infections. In recent years the three main synthetic antimalarial drugs, mepacrine, pamaquin, and proguanil, had become the parent compounds of three classes of new drugs of great efficiency. Chloroquine was more rapidly active than mepacrine in the acute malarial attack, and had few toxic side-effects. "Primaquine," the primary amine corresponding to pamaquin, was less toxic than pamaquin and equally effective in eradicating the persistent tissue forms of *Plasmodium vivax*. Proguanil had long been known to form a metabolite in the tissues of the host; this metabolite had now been identified as a dihydrotriazine derivative which is many times more active than proguanil against laboratory malarial infections. The corresponding dichloro-derivative is more active still, and is now being tried clinically. Another new antimalarial similar in structure to the metabolite of proguanil is pyrimethamine ("daraprim"), which has given promise, especially as a suppressant of malaria in indigenous populations.

For the treatment of early cases of human trypanosomiasis in Africa, the most commonly used drug was pentamidine. When the infection had become established in the central nervous system, pentamidine was of little value and it was necessary to use an arsenical drug, such as "tryparsamide." The development of tryparsamide-resistant strains had led to the introduction of the new melaminyl derivatives "melarsen," "melarsen oxide," and "Mel. B." These were active against tryparsamide-fast strains in both early and advanced trypanosomiasis. Difficulty had been experienced in the manufacture of batches of uniform toxicity, and biological standardization was necessary before the drugs were issued for clinical use.

Cattle trypanosomiasis in Africa was profoundly affecting the economy and health of the human population, and new drugs such as "antrycide" and the phenanthridinium compounds "dimidium" and "ethidium" were now being used for the treatment of infected animals. Prophylaxis over long periods had not yet been satisfactorily obtained, but antrycide was useful in protecting animals for a few months in areas of low tsetse-fly density, and during their passage through fly-belts on the way to fresh pastures or to market.

Brigadier J. S. K. BOYD (London) said that among indigenous inhabitants of endemic areas chemotherapy offered a good chance of eliminating or greatly reducing malaria. Drugs used for this purpose must be inexpensive, and of these proguanil had to date been the most effective. The new drug daraprim was promising, especially where infection with *P. vivax* was prevalent. Chloroquine and "camoquin" were too costly. Overt malaria in a population having suppressive treatment should not be treated with the substance used for suppression. Both proguanil and daraprim had a tendency to stimulate the emergence of drug-fast parasites, and this was accentuated by attempting to cure apparent failures in suppression with larger doses of the same drug. Quinine was best avoided in hyperendemic areas because of the danger of blackwater fever. An adequate course of any of the schizonticides would usually cure infection with *P. falciparum*. Daraprim had given good results but might act slowly. An acute attack of benign tertian malaria was easily controlled by any of the schizonticides, but the only drugs so far shown to offer hope of radical cure were the 8-aminoquinolines. These were given either along with or immediately following a course of treatment with a schizonticide. There was, how-

ever, a narrow margin between the therapeutic and toxic dose of all 8-aminoquinolines, and they were particularly liable to cause unpleasant side-effects in dark-skinned races. A non-toxic drug active against the tissue forms of *P. vivax* was badly needed. There was reason to hope that daraprim would have this property.

Dr. C. C. CHESTERMAN (London) said that in considering the chemotherapy of malaria it was necessary to ask what parasite and strain were present; who was to be treated, and what was their state of immunity; and why one was using the drug—to cure the acute attack or to prevent infection or relapses. Dr. C. S. P. HAMILTON (Dublin) said that though short courses of treatment for malaria were not wholly satisfactory, he had found camoquin and chloroquine to be the best drugs available for such courses.

Leprosy

With Dr. L. E. NAPIER (Reading) in the chair, the afternoon session opened with a paper by Dr. R. G. COCHRANE (London) on the chemotherapy of leprosy. He said that in the European and Mongolian races treatment with hydnocarpus oil had been disappointing. Of the sulphones diamino-diphenyl-sulphone (D.D.S.) was the drug of choice where the patients could be closely supervised. It was probably changed in the liver into a mono-substituted sulphone, and such compounds might prove to be those with the greatest activity in the disease. Sulphetrone (a di-substituted compound), when given by injection, probably was also broken down into the same mono-substituted substance. Of other chemotherapeutic agents the thiosemicarbazones had received widest trial, but had been found less effective than the sulphones. Streptomycin and *para*aminosalicylic acid were not sufficiently active against leprosy to warrant their use.

Dr. J. BARNES (Dublin) said that he had carried out clinical trials wtih B.283 (a phenazine dyestuff). The results had been encouraging. Professor A. W. WOODRUFF (London) said that clinical trials with *iso*nicotinic acid hydrazide were being carried out by the staff of the Hospital for Tropical Diseases, London. It had become apparent that this drug had a therapeutic effect in leprosy and this was being assessed.

Enteric Fever

Major D. E. MARMION (R.A.M.C.) read an occasional paper on the chemotherapy of enteric fever. Describing his experiences in treating a series of 350 cases, he said that chloramphenicol remained the only antibiotic of clinical importance in the disease. It was given orally in doses of 50 mg. per kilo patient's weight daily, and when the temperature fell to normal this amount was halved. The optimum course lasted 14 days and other courses, including those using a higher dosage or administration over a longer period, offered no advantage over this. The development of a carrier state was no commoner after treatment with chloramphenicol than in untreated cases. Perforation of the bowel could be treated conservatively in those receiving the drug. Agglutination titres were lower and relapses were more frequent than in untreated patients. Repeated short courses of the drug had been ineffective in forestalling relapses. Antityphoid vaccine had been administered in doses of 0.1 ml. on 10 consecutive days in an attempt to prolong and intensify the antigenic stimulus and the results had been promising. Crises probably caused by liberation of toxin from killed organisms sometimes occurred in patients who were very ill before treatment commenced. It was possible that cortisone could be used to render these crises less severe.

Dr. STANLEY BANKS (London) suggested that a 7-day course of chloramphenicol might be as efficient as one of 14 days. He considered that T.A.B. vaccine should not be given during a course of chloramphenicol treatment, but he was interested in the suggestion regarding its later use. Dr. J. UNGAR (London) said that injections of sodium thiosulphate might be of value in treating the toxic crises.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Friday, July 11

Cardiac Disease in Pregnancy

With the president, Professor JOHN F. CUNNINGHAM (Dublin), in the chair, Dr. ALAN THOMPSON (Dublin) opened a discussion on the management of the pregnant cardiac patient with a review of the physiological changes in pregnancy. Hydraemia and the restriction of movement of the diaphragm result in a reduced vital capacity. This made cardiac patients particularly liable to failure at the seventh month of pregnancy. In the early diagnosis radiological investigation of the heart was particularly useful. If there was severe congestive failure salt and fluid should be restricted. For moderate degrees of failure Dr. Thompson advised mercurial diuretics even in the presence of albuminuria, for auricular fibrillation digitalization. Pulmonary oedema responded well to morphine and oxygen, but venesection was of doubtful value. If termination was indicated it should be performed as early as possible in the pregnancy, but never as an emergency operation.

Dr. A. P. BARRY (Dublin) said that 90% of these cases were rheumatic in origin. During pregnancy the characteristic murmur might not be apparent on many occasions even with the closest scrutiny. A careful examination of the heart should therefore be made at each antenatal visit in all cases, but especially in those with a history of rheumatic carditis. He graded his patients according to the New York Heart Association classification, but he included in Group IV all cases of auricular fibrillation and all patients who had ever suffered from an attack of cardiac failure. He then went on to analyse the 266 cases of cardiac disease associated with pregnancy which had been admitted to the National Maternity Hospital, Dublin, during the previous three and a half years. Mitral stenosis with or without other lesions accounted for 247 of the 266 cases. The maternal mortality was 0.75%—one death due to cardiac failure at the 34th week complicated by a virus pneumonia, and another due to a quiet rupture of a classical scar at the 34th week of pregnancy. The corrected mortality was, therefore, 0.37%. The mortality rate in Grades III and IV alone was 2.85% uncorrected or 1.42% corrected. This was a figure well below the expected rate even in non-pregnant women (Grades I and II, 2%; Grades III and IV, 18% and 6% respectively), and had been achieved not by any new method but by close attention to detail. In his view, provided the obstetrical care was adequate, pregnancy was not harmful to Grade I and II patients. Although pregnancy might be harmful to Grade III and IV patients it was not more so than the ordinary life these patients have to live. There was no evidence in these cases that pregnancy is more harmful than efforts to terminate it. He advised restriction of salt and fluid intake in all cases. Increased vigilance was suggested for Grade I patients. Grade II patients must have 10 hours' rest at night and 2 hours' in the afternoon. Both grades should be admitted to hospital two to three weeks before delivery. Every patient in Grades III and IV must be placed at absolute rest in hospital until some weeks after delivery. Should cardiac failure occur at any stage during pregnancy it should be treated medically; his figures showed that there are no medical indications for destroying the normal foetus under these circumstances. Many Grade IV patients were improved by the absolute rest during the pregnancy. Induction of labour during the last three weeks was foolish.

Method of Delivery

As for methods of delivery Dr. Barry found that the worse the grading the easier was the delivery. In the management of the cardiac condition itself there was no place for caesarean section. Morphine and pethidine should be used in the first stage, but inhalation analgesics should be avoided because of the dangers of hyperventilation. If there were failure in the first stage the patient should be assisted by venesection, morphine, digoxin, and aminophylline; if

response was poor labour should be terminated. Lower segment caesarean section under local analgesia might be used, but Dr. Barry had found that, since the head is usually low and the cervix soft and dilated, the latter could be incised and a forceps delivery performed. During the second stage oxygen could be administered, and forceps delivery should be carried out under local analgesia as soon as possible. The incidence of forceps delivery in his cardiac cases was 12.7%, about 5% higher than the general rate for the hospital. The caesarean section rate was 1.5%—one for threatened rupture of the uterus and one for placenta praevia, the other two being repeat operations. The total foetal loss, excluding abortions, was 6.3%.

Post-partum haemorrhage was not discouraged, but breast-feeding was inadvisable. Valvotomy could be carried out at any stage of pregnancy if the cardiologist thought it necessary. Dr. W. SOMMERVILLE (London) and Dr. P. PHILLIPS (Bristol) took part in the discussion which followed.

Vaginal Discharge

After a short interval the meeting was resumed. Dr. IAN DONALD (London) opened a discussion on the aetiology and investigation of vaginal discharge. In his view, if a discharge was bad enough to treat, it was bad enough to investigate. Investigation reassured the patient that nothing discreditable was going on and that the discharge was not due to a malignant growth. He stressed the importance of a special vaginal discharge clinic so that these patients could be investigated properly, and then reviewed 600 cases seen at the Chelsea Hospital for Women. All cases of venereal disease and those cases amenable to surgical treatment—e.g., carcinoma of the cervix, erosions, etc.—were skimmed off in the ordinary gynaecological clinic. Of the 600 cases treated since 1948 in the special clinic for vaginal discharge trichomonal infections accounted for 37.7% and moniliasis for 16.2%, combined trichomonal and monilial infections for 7.9%, and miscellaneous infections for 33.3%. Thirty cases remained unclassified.

The aetiological factors of trichomonal vaginitis were reviewed. The maximum age incidence lay between 20 and 30 years. Sexual intercourse was now widely accepted as one of the principal precipitating causes. Nulliparous patients accounted for 47% of his cases; 36.1% were unmarried but only 5.4% unquestionably virgins. Dr. Donald thought that intercourse rarely infects directly through the implantation of infected semen but more usually by lowering the acidity of the vagina. Contraceptives appeared to have no aetiological significance, and they did not prevent infection. Factors such as infection from the intestinal tract, or from lavatory seats, towels, etc., and careless nursing techniques, could not be ruled out. Possible sites of reinfection were the cervix, Skene's glands, the urinary tract, and Bartholin's glands. He found associated cervical lesions in 26.5% of cases. Menstruation was one of the main aetiological factors in *T. vaginalis* vaginitis. Typical signs were most often found in the anterior fornix, and if the index finger was run down along the posterior vaginal wall the typical frothy discharge would be seen to collect behind it. Both wet and dry specimens of discharge should be sent to the laboratory, the former in pipette tubes already mixed with saline. It was most important that the specimen should also be examined immediately in the clinic; in 94 out of 219 of his cases the organism had been found only in the latter.

Monilial Infections

Of the monilial parasites, only *Candida albicans* was pathogenic to man. It throve in an acid medium, so that pregnancy provided ideal conditions for its growth. It was also associated with achlorhydria. It could lie dormant for years, but when the patient was afflicted a discharge which was glairy or flaky like bread resulted. If the discharge were stained, the spores or mycelia could be seen under a 1/6th objective. *Candida albicans* accounted for one in six of all Dr. Donald's cases. In 7.9% it was combined with trichomonal vaginitis. Diluted hydrochloric acid should be given orally for resistant monilial infections. In the miscellaneous group, 14.7% were due to cervical lesions, 3.4% due to post-menopausal vaginitis; 14% were idiopathic; 5 were due to pregnancy, 1 to gonorrhoea, 1 to syphilis, and 1 due to the presence in the vagina of two wads of wrapping paper.

Treatment

Professor W. KEARNEY (Cork) then read a paper on the treatment of vaginal discharge. Successful treatment depended upon careful investigation, and "grape-shot" therapy was the commonest cause of failure. He confined his remarks to those conditions whose main symptom was vaginal discharge. For trichomonal vaginitis he found that acetarsol vaginal pessaries inserted nightly for a few weeks gave good results, but relapses were common. The results from three weekly picric acid powder vaginal insufflations were very satisfactory. During the past year he had been obtaining excellent results by painting the vagina with "hydraphen" 0.1% solution at weekly intervals for one month and having the patient insert one hydraphen suppository every night for the first two weeks and on alternate nights for the second fortnight. But whichever form of treatment was used trichomonacidal suppositories should be inserted into the vagina during menstruation for several months following the initial course of treatment. If there were relapses a thorough search for possible sources of reinfection should be carried out. An aqueous solution of gentian violet was considered to be a specific cure for vaginal thrush, but because it stains underclothing he advocated the use of gentian violet jelly. Recently Professor Kearney had had good results with "mycil" vaginal pessaries. If glycosuria was present, this should be dealt with.

In vulvovaginitis in children local oestrogenic treatment should be avoided. Swabs should be taken and 300,000 units of procaine penicillin given daily for three days. Rectal examination should always be made in young girls complaining of vaginal discharge to exclude a foreign body.

Vulcanite pessaries were much less likely to produce a vaginitis than rubber rings. Most cases of senile vaginitis responded to vaginal pessaries containing 1,000 to 2,000 international units of oestrogen inserted nightly for two weeks. In recalcitrant cases bacteriological investigation should be carried out, and the appropriate antibiotic be given as well as additional oestrogen therapy either by injection or orally. Patients with acute cervicitis should be given the appropriate sulphonamide or antibiotic therapy. Chronic lesions, because of their dangers, should be treated by electrophysical means or if very severe by amputation of the cervix.

Gonorrhoea must be treated as early as possible, precautions being taken against spread. In America 33% of white women suffering from gonorrhoea were resistant to sulphonamides. Excellent and dramatic cures could be obtained with penicillin, but because of the risk of masking syphilis he advocated the use of streptomycin, 750 mg. intramuscularly daily for three days. Terramycin, 1 g. six-hourly, aureomycin, 500 mg. six-hourly, or chloramphenicol, 750 mg. six-hourly, for 24 hours might also be used. If after two months the patient still showed residual symptoms the appropriate electrophysical or surgical procedure should be carried out.

Dr. D. T. O'DRISCOLL (Galway) spoke in the discussion which followed.

Prematurity

With the vice-president, Mr. F. NEON REYNOLDS (London), in the chair, Dr. J. K. FEENEY (Dublin) read a paper on the aetiology and management of prematurity. During the years 1950 and 1951, 3,627 babies were born alive at the Coombe Lying-in Hospital; of these 315 or 8.7% were premature. Their birth weight ranged from 2 lb. to 5 lb. 8 oz. (0.9 to 2.4 kg.). The neonatal mortality among these was 30%, whereas the mortality among the mature babies was

2%. The hospital serves a very poor area of the city, and the loss of babies born to these poor patients was two to four times that in the case of parents in good circumstances. Diet made the poor patients more liable to obstetric complications. He then reviewed the causes of prematurity, discussing each separately.

(1) *No definite aetiological factor*, 45%. These mothers just had small babies. In poor patients, many factors combined to cause undernourishment, and he suggested that this might be the cause.

(2) *Twins* accounted for 17%, with a neonatal mortality of 15%. Toxaemia occurred in 50% of the twin pregnancies. He suggested that early diagnosis of twin pregnancy would reduce the incidence of prematurity.

(3) *Toxaemia of pregnancy* accounted for 14%. Premature induction of labour and placental insufficiency were the main causative factors here. Caesarean section had a definite place in the treatment of selected cases of toxaemia of pregnancy. Small babies of toxaemic mothers might be ill-fitted to withstand a long labour and vaginal delivery.

(4) *Accidental haemorrhage* was the cause of premature labour in 10%. In a few patients, the haemorrhage was toxic in origin, but it was non-toxic in most of those cases in which the baby was born alive. These cases were difficult to prevent. External version should be performed with care. Abnormalities of the cord and placenta could not be avoided.

(5) *Placenta praevia*, 4%. A conservative approach to this problem was advocated.

(6) *Acute diseases of the mother*, 3%. Early diagnosis and treatment were necessary to prevent premature labour.

(7) *Gross congenital deformity*, 3%. In Ireland, the difference in the incidence of foetal abnormality with differing social standards must be of statistical significance.

(8) *Hydramnios* without evident foetal abnormality, 1.5%. Caution should be exercised in the choice of time of induction of labour for hydramnios.

(9) *Habitual spontaneous premature ruptured membranes*, 1.5%. Here Dr. Feeney postulated abnormal thinning, friability, fragility, or adhesion of the foetal membranes.

(10) *Miscellaneous conditions*, 1.3%. These included congenital abnormalities of the genital tract and rupture of a classical caesarean section scar.

Dr. Feeney then discussed methods of reducing the neonatal mortality in premature babies. The incidence of intracranial haemorrhage could be reduced by the use of vitamin K during labour, forceps to shorten the second stage, and the adoption of the Liverpool technique in breech deliveries. Oxytocic drugs should be avoided. Pulmonary complications could be reduced by a more extensive adoption of local or spinal analgesia. Better surveillance during the first 48 hours would prevent deaths from neonatal infections, anaemia, and asphyxia pallida, and from congenital abnormalities.

Physiology of Premature Babies

Dr. MARY CROSSE (Birmingham) then discussed the physiology of premature babies. These babies were handicapped by a lack of development, the degree of handicap varying directly with the degree of prematurity. Because of poor development of the lungs, respiratory centre, and respiratory muscles, pulmonary complications were common. The body temperature was unstable and the babies tended to stabilize best at a slightly subnormal level. Deficiency in vitamins C and K led to haemorrhagic diseases and to intracranial haemorrhages respectively. Low plasma proteins predisposed to oedema. Premature babies were particularly liable to anaemia because of deficient stores of iron, defective blood formation, and increased destruction of blood cells. The level of kidney function ran parallel to the gestational age of the patient, so that such infants were liable to acidosis and to oedema.

The rate of growth was relatively greater than in a full-term baby. By one and a half to two weeks after the expected date of delivery the premature baby should have reached the normal birth weight of a child born at term. Their requirements of mineral salts and vitamins were increased because of their rapid growth. Liability to infection was increased because of impaired capacity to form antibodies and granulocytes, and also because of incomplete placental transmission of immune bodies and increased hydration. Doctors and parents should realize that premature babies were actually 1, 2, or 3 months younger than their chronological ages when assessing mental and physical functions.

Management

Dr. JOHN N. O'REILLY (London) read a paper on the management of the special physiological handicaps of the premature infant. The instability and weakness of the respiratory system called for the utmost gentleness in clearing the pharynx and for the provision of oxygen, which should not be in higher concentration than 50%. If higher, retrolental fibroplasia might occur. Vitamin K should be given routinely. The instability of the body temperature necessitated control of the environmental temperature. The room temperature should be 70° F. (21.1° C.) and the cot temperature 90° F. (32.2° C.). Humidity of 65% was the optimum, but special arrangements for Ireland and England were not required. The most satisfactory postures for premature babies were described, and the need to prevent infection was stressed. The only early signs of septicaemia might be the refusal of a feed and usually a cyanotic attack at or after a feed. Treatment should begin at once even in the absence of proof of infection. Prophylactic oral penicillin might be given. The general basis of feeding could be summarized as the giving of the minimum quantities of food and fluids which would secure the adequate growth and development of the child. Dr. O'Reilly then developed this theme in more detail.

Habitual Abortion and Intrauterine Death of Foetus

After an interval for tea the meeting was resumed with the vice-president, Mr. NINIAN FALKINER (Dublin), in the chair. Mr. E. W. L. THOMPSON (Dublin) introduced the subject by giving definitions for the terms "abortion" and "habitual abortion." The high incidence of abortion was discussed, and figures were given showing that the incidence, taking all pregnancies into account, was probably about 10%. The importance of the random factor in these cases was stressed and in contrast the comparatively low incidence of a recurring factor. The term "habitual aborter" should be restricted, therefore, to those patients who had had at least three consecutive abortions. The aetiology and investigation of these cases were considered under the general heading of "recurrent unsuccessful pregnancy." Five groups of causes were suggested: (i) Errors in early development of the ovum; (ii) anomalies of local pelvic environment; (iii) anomalies of physiological environment; (iv) errors in early ovum nutrition; and (v) maternal lesions and chronic maternal diseases. Almost all cases could be placed into one of these groups.

Patients who had had either an isolated abortion or a "two-abortion sequence" should not have undue stress laid on such occurrences, as over-investigation could possibly do more harm than good. Only the more obvious causes should be treated. On the other hand, patients with a "three-abortion sequence" should be segregated in special clinics where a sense of individual interest could be achieved. Such an investigation was described in outline and some successful series of cases cited from the literature.

Dr. P. M. F. BISHOP (London) discussed the treatment of habitual abortion. He was seriously beginning to consider the possibility of a psychological element in the aetiology of this condition. The success of treatment might depend as much on this element as on any other factor. The method of hormone pellet implantation was then discussed. Using progesterone pellets, his success rate was 72%. Bevis had studied 32 cases and gave them no treatment. Of these 81% produced live children. It was very difficult to interpret their results except in terms of psychotherapy, but until further progress was made he was still sufficiently impressed with progesterone implantation therapy to continue its use.

A THREE-DIMENSIONAL SURGICAL FILM

An interesting feature of the Joint Annual Meeting of the British Medical Association and Irish Medical Association in Dublin was a three-dimensional colour film, with sound commentary, which was shown by courtesy of Ethicon Suture Laboratories, Ltd., Edinburgh. The film, which depicted a total gastrectomy for carcinoma done by a purely abdominal approach, was produced by the Worcester Film Corporation, of Worcester, Massachusetts, under the direction of Mr. Floyd A. Ramsdell, the inventor of a new camera and projector for three-dimensional technique.

The film was taken with a variable interocular camera which is said to have overcome the difficulties attending earlier attempts to make three-dimensional motion pictures. Formerly a single camera with beam-splitter was used, and this produced two images at each exposure of the film. When enlargement was attempted there was distortion of the image, which caused headache and nausea in some viewers. The present film was taken with a double camera system, and, by adjusting both the inter-lens distance and the angle between the two cameras, the makers have found it possible to reproduce more exactly the conditions of normal vision. The two separate films, for right eye and left eye, are then projected synchronously by a special projector on a single screen. Viewed with the unaided eye the screen image is blurred; but by the use of special polaroid spectacles, which separate the images for the individual eyes, a clear three-dimensional picture is seen.

The promoters claim that the film represents a notable advance in cinematographic technique, and this is certainly true, though one or two of those who saw the film in Dublin did find that watching it gave them a dull headache. It was quite clear that a remarkable technical effort lay behind the making of the film, but perhaps it may be questioned whether binocular vision is really so important to the proper appreciation of a film of a surgical operation. A series of really good "still" pictures by an artist remains one of the best ways of imparting a knowledge of surgical technique outside the operating theatre. Detailed planning, suitable close-up shots, careful and, if necessary, ruthless editing, and the interspersing of explanatory sketches all help to lift a surgical film out of the ordinary. The clarity of this particular film lost nothing by the closing of one eye despite, of course, the immediate loss of binocular vision. and the excellent view of the diaphragm was due to good lighting and a generally good technique. As a novel form of entertainment and instruction the film was most interesting, and its producers are to be congratulated on their pioneer efforts with a new method of visual education.

Reports of Societies

JOINT MEETING OF ORTHOPAEDIC ASSOCIATIONS

The Joint Meeting of the Orthopaedic Associations of the English-Speaking World, whose opening by the Queen Mother has already been noted (July 5, p. 37), was attended by members of the orthopaedic associations of America, Canada, Australia, New Zealand, South Africa, and Great Britain, as well as by representatives of other countries. The meeting lasted from June 30 to July 5, and was held in London. The following is a selective account of the scientific proceedings.

Disorders of the Hip

A number of communications on disorders of the hip-joint were given, and several of these dealt with the problems of traumatic dislocation. Mr. E. A. NICOLL (Mansfield) reported avascular necrosis of the femoral head in 10% of 144 cases. This complication he attributed chiefly to delayed reduction and early weight-bearing. Dr. MARCUS J. STEWART (Memphis) agreed about the former factor, but he did not think that the latter was of any real importance. The American speaker reported necrosis in 15.5% of cases treated by closed reduction, and in 40% of those operated upon. Mr. JAMES PATRICK (Glasgow) and Mr. NICOLL both emphasized the importance of distinguishing between avascular necrosis and osteoarthritis. In avascular necrosis symptoms preceded radiographic changes, and it always occurred within two years of injury, whereas arthritis developed more slowly.

Dr. FRANK STINCHFIELD (New York) reviewed a large series of cases of osteoarthritis of the hip treated by arthrodesis, mould arthroplasty, and Judet's operation. In the first group were 108 cases; pseudarthrosis had occurred in 22% despite a thorough technique. Low back pain and painful knee were other important sequelae in some cases. Those patients who had mould arthroplasty valued relief of pain more than preservation of movement, and the latter tended to decrease for several years after operation. The follow-up on the Judet operations had hardly been long enough to allow proper assessment. The indications for arthrodesis put forward by some speakers were held to be those for arthroplasty by others. An entirely new technique of arthrodesis was described by Mr. JOHN CHARNLEY (Manchester) in which a central dislocation of the hip was produced after reaming out the floor of the acetabulum.

In a discussion on treatment of the tuberculous hip the advantages of ischio-femoral arthrodesis were emphasized by Mr. THOMAS KING (Melbourne): this speaker and several others stated that adduction deformity should be allowed to occur in the early stages so that a shorter graft could be used, more stable fixation being achieved later. Most of the modifications in technique advocated by this speaker were in direct contradiction to the views of Brittain, who introduced the ischio-femoral arthrodesis.

Congenital dislocation of the hip-joint presents many thorny problems in older patients. Dr. PAUL COLONNA (Philadelphia) described his experiences with capsular arthroplasty, in which the best results had been achieved in those between 3 and 8 years of age. Adequate deepening of the acetabulum was essential, and excellent function with a good range of movement could be achieved in most patients. Dr. ALEXANDER GIBSON (Winnipeg) advocated a postero-lateral approach to the hip-joint, and described the technique he had used. In subsequent discussion several speakers, including Sir HARRY PLATT (Manchester), confessed to employing open reduction more frequently in recent years, but they emphasized that it should be done with considerable discretion. The problem of what to do, if anything, between the age of 8 years and adult life was still unsolved.

Spinal Injuries

The treatment of paraplegia resulting from thoracolumbar vertebral injuries was reviewed by Mr. F. HOLDSWORTH (Sheffield) in 68 cases, 47 of which had been treated from the time of injury. There had been no pressure sores in the latter cases, thanks to careful nursing and the avoidance of plaster fixation. An indwelling catheter with free drainage was, in his opinion, the best way of preventing urinary infection. The commonest site of vertebral injury causing paraplegia was at the level T 12 and L 1. At this level there was a mixture of cord injury and nerve-root damage, the extent of each of which could be quite easily determined at an early stage. The limitations of radiography in determining the stability or otherwise of the spine were well known; but in the event of instability he advocated internal fixation by metal plates, and Dr. PHILIP WILSON (New York) supported this view. The absence of bedsores and other serious complications in Mr. Holdsworth's own cases was paralleled by an average stay in hospital of 10 months; in those he had received second-hand, complications were frequent and the average stay in hospital was two years.

The related problem of fracture-dislocation of the cervical spine was dealt with by Dr. WILLIAM ROGERS (Boston, Massachusetts), who reported that 12 out of 15 fatalities in 77 such cases had been due to paraplegia. Quite apart from transient hyperflexion dislocation, massive displacement of disk material and infolding of the ligamentum flavum could also cause cord damage. One in ten patients sustained cord damage after the accident or after admission to hospital, and in this connexion laryngeal intubation was especially dangerous. The importance of efficient skull traction, even at the first-aid stage, was emphasized by several subsequent speakers, and there was strong advocacy of internal fixation methods.

The Hand

There were several interesting papers on the hand, notably that of Dr. STERLING BUNNELL (San Francisco) on ischaemic contracture. This condition was commoner than was generally realized and was distinct from, although sometimes coexistent with, Volkmann's contracture. Pathognomonic of the condition was an inability to flex the fingers when the metacarpo-phalangeal joints were pushed into extension. Prevention was important, and the established condition could be treated, according to whether or not there was any function of the intrinsic muscles, either by advancement of the muscle origins or by tenotomy of the lateral bands. Excision of scar tissue in the thumb cleft and skin grafting might be needed. Marked improvement could be effected, but complete cure was clearly impossible.

Another interesting paper on the hand was that of Mr. H. J. SEDDON (London), who described a painless motor palsy of the ulnar nerve, occurring after single or repeated trauma, and characterized by sparing of the hypothenar muscles. In four cases out of five explored he had found a ganglion arising from the carpal joints and closely related to the nerve. Direct damage to the deep branch of the ulnar nerve was most unlikely, and he therefore believed that carpal ganglia might well be a common cause of this syndrome. The tendency of such cases to slow spontaneous recovery was not inconsistent with this hypothesis.

Posture and Gait

Communications on affections of the spine, including spondylolisthesis and scoliosis, were read by several workers from home and overseas. There was much discussion on the value of various methods of spinal fusion in the former condition, and on the importance of associated soft tissue lesions in producing symptoms. In discussing scoliosis, Mr. J. I. P. JAMES (London) stressed the value of trying to make some classification of these cases. With regard to operative treatment it was noted that spinal fusions were done less often as knowledge of the indications and contraindications increased.

Professor J. B. SAUNDERS and Dr. VERNE T. INMAN (San Francisco) reported some interesting studies on gait. Nature employed the next most economical method of progression to the wheel. The centre of gravity moved along a sinusoidal pathway which was deflected not more than 2 in. (5 cm.) vertically and horizontally in the course of normal gait. Energy was used in two ways: first, in elevating and depressing the centre of gravity, and, secondly, in oscillating the legs. The latter consumed about half the energy expended in walking, and above-knee amputees used about 27% more energy than normal people.

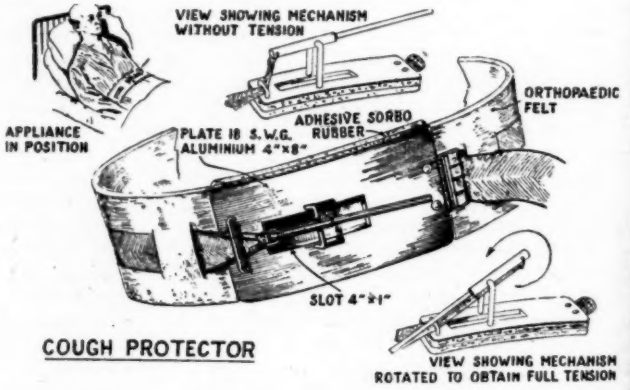
Other Subjects

Other communications of general interest from the rich and varied programme included an account of the care of the crippled child in the United States, where poliomyelitis was the disease most often responsible and tuberculous conditions were comparatively uncommon. Preliminary trials of the *iso*nicotinic acid derivatives in skeletal tuberculosis were reported on as very promising, and the beneficial effects were attributed partly to the bacteriostatic action of the drug, and partly to direct action on the body tissues. Excision of the patella was also discussed: the operation was agreed to be definitely indicated in comminuted fractures, but was not universally successful in recurrent dislocation; it was of some value in patello-femoral osteoarthritis, and was ill-advised in rheumatoid arthritis. Discomfort and aching in the knee were common sequelae of the operation. The diagnosis of injuries to the rotator cuff of the shoulder-joint was discussed with particular reference to injuries of the supraspinatus muscle, and the value of the local analgesic test and arthrography was stressed. In considering the depressing subject of leukaemia in childhood Mr. D. LLOYD GRIFFITHS (Manchester) said that it was as well to remember that bone manifestations are frequent, and he pointed out that unexplained bone pains in pale children should suggest leukaemia.

Preparations and Appliances

A COUGH PROTECTOR

Dr. PETER CAMPBELL, resident house officer, Western Infirmary, Glasgow, writes: After upper abdominal operations the acute wound pain experienced on coughing often prevents productive expectoration and may predispose to pulmonary collapse and consolidation. It can also cause a fear of the wound breaking down. The simple appliance described here relieves pain and protects the wound, by fixing the epigastrium during the act of coughing without interfering with normal respiratory chest expansion.


VIEW SHOWING MECHANISM WITHOUT TENSION
ORTHOPAEDIC FELT
ADHESIVE SORBO RUBBER
APPLIANCE IN POSITION
PLATE 18 S.W.G. ALUMINIUM 4"×8"
SLOT 4"×1"
VIEW SHOWING MECHANISM ROTATED TO OBTAIN FULL TENSION

COUGH PROTECTOR

It consists of a malleable aluminium plate, gently curved to fit the epigastrium and padded with sorbo rubber. The aluminium rod rotates on the bridge and can shorten the 40 in. (1 metre) length of webbing band by as much as 4½ in. (12 cm.). The slot in the plate and in the inner layer of the sorbo rubber forms a trough through which the short end of the rod passes. This lessens the height of the central bridge. The band can be adjusted to varying girths by the buckle, and it is laced through orthopaedic felt to prevent its edges chafing the skin. In use the plate is applied loosely over the wound and the belt is buckled so as to be comfortably slack. Whenever the patient feels the desire to cough he can tighten the belt by rotating the rod to the position which he finds gives maximum protection against painful stretching of the wound.

The appliance has been in regular use in this unit for several months with encouraging results. About 50 patients have used it; they welcome the relief it affords and are thereby encouraged to cough more freely.

I wish to thank Mr. T. E. Hotham, Infirmary instrument-maker, for valuable technical help.

Correspondence

Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.

A Register for Postgraduate Qualifications

SIR,—I wish to point out that the *Medical Directory* is the only guide we have to indicate what additional qualifications and diplomas have been acquired after registration. This is a purely commercial publication, and one is under no obligation to fill up the form which is circulated annually. The *Medical Register*, on the other hand, requires compulsory registration, but only on qualification. It is therefore possible to acquire after qualification all sorts of fancy degrees and diplomas which can be trotted out to suit the occasion, and there is no check on these apart from being asked to produce the degree or diploma itself, but I have never heard of this being done. Such laxity has probably produced a large body of qualified quacks within our ranks who have been quite unscrupulous when applying for appointments. We shall have no check on them until there is a compulsory registration for these letters which can so easily appear after an applicant's name.—I am, etc.,

Lancaster. R. PAKENHAM-WALSH.

Isolation and Quarantine

SIR,—Exponents of modern methods will note with surprise that much of the Refresher Course article on "Quarantine and Isolation" (July 5, p. 34) does not reflect present-day isolation practice, as followed either in this country or—if the 1950 edition of *The Control of Communicable Diseases* (American Public Health Association Report) is a criterion—in the U.S.A.

Economic as well as scientific and social considerations are involved—how markedly may be gauged by the example of the scarlet fever recommendation (Table III). Isolation hospitals and, as I have learned from conversations with them, many practitioners now isolate for 14 days. The table specifies: "Until infecting organism has disappeared from the throat; a month is usually *sufficient*, and shorter if *sulphonamide* or penicillin has been effective." A glance at the Vital Statistics section of the *Journal* shows some 1,204 scarlatina notifications for the week ending June 14, and a similar number for the corresponding week of 1951. Now, if we must add two unnecessary weeks to each of a whole year's cases, the cost, *inter alia*, of extra working time for a large number of medical, nursing, and home attendants would be enormous; we cannot even attempt to estimate the additional inconvenience and disorganization in a multitude of homes.

An earlier American handbook stated that "throat culture findings are not a practical guide in determining the duration of communicability." Many hospitals have long discontinued the practice as a routine in recovered scarlet fever; typing and sensitivity tests are in a different category. There is no evidence that sulphonamides shorten the detention period, yet intensive penicillin therapy can reduce it to one week. Although many American and Danish workers favour this intensive method, our experience—we have employed a routine penicillin therapy since 1946—has been that the discomfort to the patient does not justify a prolonged course of injections in the mild type of scarlatina now prevalent in this country. We achieve excellent results by a less drastic method. Absence of return cases shows the effectiveness of a 14-day isolation.

"Three negative swabs at intervals of two days" is the recommendation for the determination of the length of isolation in meningococcal infection. With modern therapy, organisms generally disappear from the nasopharynx within 24 hours. Since convalescents rarely become carriers, terminal swabbing is not now favoured.

It is now usual to set a limit to the isolation period of varicella. "Until all scabs have disappeared," etc., may entail only a brief segregation in a mild attack. In city practice, however, and especially in hospitals which have to deal with debilitated children, scabs may persist for weeks. As each spot is infectious for three days only (Frederic Thomson, 1916), and it is exceptional for cropping to exceed seven days, a 10-day maximum is safe and satisfactory. Some American clinicians would reduce the maximum to six days, on the grounds that the majority of cases have no fresh spots after three days.

Table II gives the "results of surveillance," which is described as having a better record than quarantine. Eighty-four of 203 contacts with various infections were placed under surveillance, and the remaining 119 were quarantined. As 109 of the contacts had a history of a previous attack it would be logical to assume that these would be allocated to the surveillance rather than to the quarantine group. This assumption is supported by the strongly expressed reference (p. 36) to "those who fight to maintain quarantine, even of subjects who have had a previous attack." Under these circumstances, no information on the value of surveillance could be expected. What the table does show is a success from the standpoint of prevention—only 3 of the 94 susceptibles developed the disease.—I am, etc.,

Eastern Hospital, London, E.9. G. W. RONALDSON.

Malaria in Britain

SIR,—I read with interest Professor G. Macdonald's letter (July 12, p. 92), as three days prior to its appearance in the *Journal* a recently demobilized 21-year-old soldier was sent into the Queen Elizabeth Hospital, Birmingham, by his general practitioner, who had diagnosed, clinically, benign tertian malaria. This man had returned from Korea two months previously, and had been taking proguanil up to the time of arrival in this country, when the drug was discontinued.

The first clinical attack occurred six weeks after disembarking, and, although the disease was atypical (the patient said he had had only four bouts of fever in a fortnight), diagnosis was none the less correct, as the gametocytes of *Plasmodium vivax* were found in the blood films.—I am, etc.,

Birmingham. P. H. ROUND.

Hormones and Personality

SIR,—It is gratifying to see that our original work on the relationship of the adrenal gland and psychosis is being confirmed both here and in America. This is particularly so since our papers (*British Medical Journal*, 1939, **1**, 1220; 1945, **1**, 696) were greeted with such incredulity 7 and 13 years ago.

Our work established that some paranoid psychoses are associated with adrenal disease and that in some cases removal of the adrenal restores the patient's sanity. The fact that our therapy in psychotic women was subtractive (by adrenalectomy) and the recent work in psychotic men has been additive (by injection) suggests our original thesis that psychosis in these cases is due to a homosexual-heterosexual conflict is correct. It seems that in females the masculine side of the personality is unduly activated, whereas in males insufficient masculinization allows the feminine side to preponderate. This is in accordance with Rosanoff and Orr, who long ago called schizophrenia "chaotic sexuality."

Unfortunately, for various reasons beyond our control, our adrenal research has not been pushed to its logical conclusion, and the failure of Cunningham Dax, using unsuitable material, to confirm our work led to its neglect. However, the paper by Dr. E. B. Strauss and his associates (July 12, p. 64) suggests that the adrenal may, as we thought, be the key to the most crippling of all mental diseases, schizophrenia.—We are, etc.,

CLIFFORD ALLEN.
L. R. BROSTER.

London, W.1.

Orchidectomy for Intersex

SIR,—Mr. D. Innes Williams (June 14, p. 1264) gives most valuable practical advice on the diagnosis of sex in the problem baby. I read his classification of intersex with great interest and admiration. With reference to the adult and adolescent, his advice to allow the individual of doubtful sex to remain within the sex to which he or she has been brought up, and to which his or her inclinations tend, is, I am sure, sound, no matter whether the individual possesses testes, ovaries, or ovo-testes. In his description of the treatment of certain types of patients, he described and condoned what would appear to me to be wholesale castration. Not only this, but he advised in many cases prolonged stilboestrol therapy, a carcinogenic agent of some importance in relation to the breast. If at all possible, orchidectomy should be avoided. Malignant disease or gangrene following torsion would seem to be about the only sound indications for castration in these patients. Mr. Innes Williams does not seem to be aware of Mr. Harold Chapple's classical case (*British Medical Journal*, 1937, **1**, 803) or the case described in the same year by Mr. Kenneth Walker and his strong condemnation of immediate castration in this type of patient (*Lancet*, 1937, **2**, 219). Mr. Innes Williams does not seem to have had experience himself of similar adult patients nor observed the children he has treated after they have grown up. He does not mention the effects of castration in this type of case nor does he make reference to Mr. Harold Chapple's paper in his extensive bibliography. I should like to advise those interested in this subject to read the original paper, which is extremely interesting. To quote brief extracts which would seem to be relevant to this subject :

"*Case Report.*—The patient consulted me when she was 18 years of age because she had never menstruated, though she had had frequent manifestations of sexual excitement at irregular intervals, and had become anxious as to their exact significance. Her general bearing was that of an attractive female, aware of her beauty both of face and figure. Her voice was pitched in the female register.

"On examination I could not detect any sign of the presence of a uterus. I found in each inguinal canal a smooth, rounded lump which was readily returned to the abdominal cavity by slight pressure, but appeared again when the pressure was removed. She complained that squeezing the lump caused a pain, which she herself described as sickening.

"Three years later she came to see me again because the lump in the right groin had become painful and had increased in size, and an operation for the cure of an inguinal hernia was undertaken. The lump was exposed and was manifestly a small testicle, complete in every detail, except that no vas could be found. It was replaced in the abdominal cavity and the canal closed. Two years later a similar operation for the same reasons was performed on the left side, when, as on the previous occasion, what appeared to be an undoubted testicle was replaced in the abdominal cavity. Four years later the hernia on the right side caused her much pain and she said the lump was trying to reappear; this time she insisted on its removal. This was carried out, and the appearance of the lump at the previous operation was confirmed; it turned out to be a definite testicle complete in every detail. After its removal her sexual ardour was considerably lessened, but remained identical in its direction.

"Here we have a beautiful, fully developed woman, with all the physical characteristics of the so-called female, and yet she has no ovarian secretion or uterus—nor has she ever had. Clinical observation of human beings shows, of course, that the original division into male and female is in reality a very superficial one, and can only be maintained on the anatomical ground of the gross appearance of the external sex organs. Certain physical and mental characteristics are generally accepted as appertaining to the males and females of the species, and it is a platitude to observe that there are very few pure males or females in the human species, but that the vast majority of individuals are a mixture in varying proportions of the male and female elements. Their characteristics are usually considered to be due to the secretions of the gonads. The present case directly negatives this supposition and proves that we must look further back for their origin. This woman had never possessed ovarian tissue at all; indeed, she had testicles."

Nowadays I think most people would agree that Mr. Harold Chapple's patient never had secretions from an ovary, but she must have been well endowed with oestrogens from her adrenal cortices.

The significant fact, which I should like to stress, is that after one testis had been removed her female ardour, which was described in adequate detail in the original paper, was lessened but remained identical in its direction.—I am, etc.,

Leeds. MICHAEL C. OLDFIELD.

Burns and Antihistamines

SIR,—I do not know much about burns, but I have a little experience with antihistamines. Drs. S. Sevitt, J. P. Bull, C. N. D. Cruickshank, D. MacG. Jackson, and E. J. L. Lowbury (July 12, p. 57) have done all their experiments with antazoline, which, to my knowledge, is the weakest of all antihistamines. This has also been confirmed experimentally (Bain, 1949 ; Feinberg *et al.*, 1950 ; Armitage *et al.*, 1952). One would expect the strongest, and not the weakest, antihistamine to be chosen for such an experiment. It is unfortunate that so many authors have spent so much ingenuity and time on an investigation which, in the circumstances, can only have limited validity and certainly cannot decide the question at issue.—I am, etc.,

London, W.C.1. H. HERXHEIMER.

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Wound Healing After Large Blood Transfusions

SIR,—In my colleague Mr. V. J. Downie's article "Massive Haemorrhage from the Acute Gastric Ulcer" (July 5, p. 24) he mentions the incomplete healing of the suture lines in two patients on whom he had performed partial gastrectomies, and of a threatened wound disruption in a third. I know of a further similar case where, following severe gastro-intestinal haemorrhage, Hb 36%, and preoperative blood transfusions, the anastomatic suture line broke down though the stitches were intact and no cause was revealed at necropsy for the failure of union.

The question of vitamin-C deficiency developing or being aggravated in patients who have had multiple blood transfusions almost amounting to replacement transfusion following gastro-intestinal haemorrhage is at present under investigation, and it is my practice to add 1 g. ascorbic acid to each bottle of blood before transfusion.

I should be interested to know whether any others have had a similar experience and would be grateful to them if they would communicate with me.—I am, etc.,

General Hospital, Wellhouse Lane, Barnet, Herts. G. RIDDELL ROYSTON.

Massive Haemorrhage from the Acute Gastric Ulcer

SIR,—We were very interested to read the article by Mr. V. J. Downie (July 5, p. 24) concerning massive haemorrhage from acute gastric ulcers. We have had experience of almost 150 cases of haematemesis in the last two years and have been faced with similar problems. We feel, as Mr. Downie, that when a case of gastro-duodenal haemorrhage is submitted to laparotomy, provided there is no evidence of other abnormality in the abdomen, it is advisable to perform an immediate partial gastrectomy. We realize, of course, the necessity and difficulty of excluding bleeding from oesophageal varices. We should like to make the following additional points:

1. Massive haemorrhage may occur even when an acute ulcer cannot be found on histological examination, and we feel, as others do, that an atrophic gastritis can itself be the cause of massive haematemesis.

2. Mr. Downie's cases range from the age of 50 to 75. Similar problems can occur in much younger age groups. We had one case at the age of 26.

3. We notice that in three out of six cases the ulcer was present on the lesser curve, and that in Case 6 was actually

crushed by a clamp. This is exactly what happened to one of our cases, and we would therefore like to stress that if a gastrectomy is carried out in these circumstances it should be a wide gastric resection because it is quite easy to miss an acute ulcer in the duodenum or high up on the lesser curve. Indeed Warren Cole has stated that gastrectomy should not be carried out for haemorrhage when an ulcer cannot be felt, because of this very danger of missing the active lesion.

4. We have had a patient with massive haematemesis for which laparotomy was performed and in whom no obvious source of haemorrhage could be detected. The patient continued to bleed profusely and after 10 days and 50 pints (28 l.) of blood a second laparotomy and partial gastrectomy were carried out, with complete recovery. At the first laparotomy the stomach had been opened without an ulcer being discovered, and the histological specimen of the resected stomach showed an atrophic gastritis.

—We are, etc.,

M. HERSHMAN,
S. Z. KALINOWSKI.

Stourbridge, Worcs.

Cholesterol Tolerance and Coronary Thrombosis

SIR,—I read with interest the criticism of Dr. R. P. Cook (July 12, p. 93) condemning the use of crystalline cholesterol in the cholesterol tolerance test I described (June 14, p. 1278). I note that his assumption that "cholesterol in such a form is poorly absorbed by the human" is based on a single experiment conducted on only one human subject (R. P. Cook and D. C. Edwards, *Biochem. J.*, 1951, **49**, 41). I feel that it would be unwise to draw a conclusion from such a solitary experiment.

Dr. Cook appears to have missed a point which I made, and which I would like to emphasize in view of his doubt concerning the absorption of crystalline cholesterol. In the patients suffering from nephritis (type 2), diabetes mellitus, and myxoedema (untreated) the serum cholesterol was raised, after the ingestion of the meal described, by 46–232 mg. per 100 ml. above the fasting level; in three of the six patients by over 100 mg. per 100 ml. This appeared to show that the test dose of cholesterol was absorbed sufficiently to raise the blood cholesterol significantly in patients suffering from some diseases. I must point out here that tests since originally submitting my paper have shown that such a marked rise in these conditions is not invariable.

In support of his contention that absorption of cholesterol given in the form of eggs is superior to crystalline cholesterol, Dr. Cook gives a reference to M. F. Collen, D. De Kruif, and F. Geier, *Permanente Fdn med. Bull.*, 1949, **7**, 60 (corrected reference). In his reference to this work Dr Cook does not quote the rise in the level of plasma cholesterol after ingestion of egg yolk approximately equivalent in cholesterol content to that of my test meal. At short notice, I was unable to obtain an original of the paper by Collen *et al.*, but Ancel Keys. *Science*, 1950, **112**, 79, interpreted this paper as reporting similar results to his own investigation in which crystalline cholesterol was used.

Dr. Cook concludes with the statement, "It is my considered opinion that the consumption of large quantities of eggs is dangerous for coronary patients." In view of Mr. R. H. Daw's most interesting, informative, and alarming diagram (July 12, p. 93), which showed that the male mortality rate in England and Wales was in 1949 approximately double that in 1939, and bearing in mind the quantity of eggs obtainable by the general population in this country over this period, I am sure that Dr. Cook will agree that there are other more important dangers to the coronary patient.—I am, etc.,

IAN WANG.

Glasgow.

"Cytology and Cell Physiology"

SIR,—In his review (April 5, p. 748) of the above symposium, Dr. Darlington has made a number of caustic statements about certain aspects of the book as a whole and on the section on the Golgi apparatus.

Referring to the book in general Dr. Darlington says, "it is also to be regretted that the working of the cell as a whole . . . . should be scarcely hinted at." This may be true but it sounds a little sour coming from one who for years has fathered a publication on the latest developments in cytology which has never discussed anything in the cell other than the nucleus and the chromosomes.

On the subject of the Golgi apparatus Dr. Darlington becomes lyrical, so much so that he permits himself to stray from the realms of accuracy. Thus we find that the Golgi apparatus is illustrated by "100 other figures." In fact the Golgi apparatus represents only a portion of a chapter and there are only 28 text-figures in the whole chapter. In view of such a misleading comment your readers will have no difficulty in judging for themselves how much attention to pay to the rest of Dr. Darlington's review.—I am, etc.,

GEOFFREY H. BOURNE.

London, E.1.

Hydrofluoric Acid Burns

SIR,—The case of hydrofluoric acid burns reported by Mr. R. H. Dale (April 7, 1951, p. 728) prompts me to report a similar case treated at the Edgware General Hospital.

The patient was a man of 19 years of age employed as a monumental mason, whose work included the periodic cleaning of granite tombstones with 58% w/w hydrofluoric acid. The acid is applied with a brush, the bristles of which disintegrate after a day or two, and is washed off with a wet rag after a few minutes. While doing this work the patient wore rubber gloves, but these became faulty at the tips so that his fingers were exposed to a high concentration of the acid. Pain of a constant burning nature came on after three hours and by the following morning he found that his fingers had partly sloughed.

At operation shortly after admission all sloughed skin was excised and a tulle gras dressing applied. Parenteral penicillin was administered. One week later more sloughs were excised under anaesthesia and the tip of the index finger amputated on account of gangrene. Healing then proceeded rapidly and the patient was discharged after three weeks in hospital.

He returned to work 14 weeks after the injury, and, apart from the loss of the tip of his index finger, the functional loss is very slight.

The photograph was taken after the sloughs had separated and shows the damage which can result from the use of faulty protective clothing. I wish to thank Mr. D. B. Craig for permission to publish this case.—I am, etc.,

G. R. C. PEATFIELD.

Edgware.

Pain in Childbirth

SIR,—I doubt if the callous indifference imputed by a speaker at Dublin to the pain suffered during childbirth really exists in the good general practitioner, who has been working under difficulties of many kinds during recent years.

As a practical point I should like to draw attention to the advantages of the "brisette" of chloroform prepared by an Edinburgh firm, containing 20 minims (1.2 ml.) of chloroform. The patient or nurse can use it with no worry about overdosage. It produces analgesia sufficient for second-stage pains without depriving the mother of the knowledge of the birth. It is not so repulsive as a rubber mask, and the average cost of the amount used is 1s. 6d. The box is not cumbersome to carry. Another good point is that supplies need not fail at the crucial moment: six brisettes are an ample supply for a primipara.

Gas and oxygen is frequently used too soon in the confinement, with delay as a result.—I am, etc.,

D. J. ADAMS CLARK.

Kingswood, Surrey.

Haemophilus Bronchitis

SIR,—Your annotation (June 7, p. 1238) on "Penicillin in the Lungs" interested my colleagues and myself, because you quoted our names in connexion with the problem of *H. influenzae* as a possible pathogen in the bronchial mucosa. We would like to answer some of your remarks on our paper.

For more than 30 years we have studied the problem from a clinical bacteriological angle, and we may thus claim to have accumulated a great experience in this field. Koch's postulates cannot be fulfilled in this problem, because there are no laboratory animals susceptible to non-encapsulated *H. influenzae*. This has been known for more than 50 years. Sputum and bronchial secretions are almost identical when the sputum is abundant, mucopurulent, and saliva is washed off. There are many scientific investigations in regard to sputum-bacteriology in bronchitis. *H. influenzae* has been cultivated many times since 1892 (Pfeiffer) from the mucopus visible in bronchi and bronchioles at necropsies of fatal cases of bronchiolitis, irrespective of the genus of an associated infection with a respiratory virus. *H. influenzae* has been identified within and below the epithelium of the bronchial tract in cases of fatal broncho-bronchiolitis.

The estimation of the action of antibacterial drugs in cases of bronchitis ("bronchiectasis") on clinical evidence alone (quantity of sputum, rales, complaints) is without any value. The only thing which can tell us what happens is the examination of the bacterial flora in the sputum before, during, and after treatment, *in connexion* with the quantity and the amount of leucocytic exudate in the sputum. Reduction in quantity of sputum may be in many cases spontaneous, or may be an expression of partial sterilization of the bronchial tree. The same is done in every other bacteriological field—e.g., cystopyelitis, cholecystitis, otitis.

Without the assumption that *H. influenzae* bronchitis does exist, not a single diagnostic and therapeutic problem in the field of bacterial bronchitis can be understood. If, however, one considers this group a pathogen for the bronchial mucosa, most clinical, bacteriological, and antibiotic phenomena in the same field become perfectly understandable.—I am, etc.,

Leyden, Holland. J. MULDER.

Growth of the Foetal Head

SIR,—To many obstetricians it must seem very difficult to believe that there is no significant growth in the size of the foetal head in the four weeks preceding term. That it can ever have obtained credence may have been due to an attempt by the more surgically minded obstetricians to put out of court the practice of induction of premature labour on the grounds that it must often be performed unnecessarily. In fact Mr. H. Campbell and Drs. S. Josephs and Linton Snaith (June 28, p. 1408) say that the statement that growth is negligible in the four weeks preceding term "makes nonsense of the practice of induction at 34 weeks" (Does this include 37th, 38th, and 39th weeks?). Their teaching is quite orthodox and has been accepted for as long as caesarean section has been a practical possibility. I also was taught 20 years ago to look askance at induction.

However, during the war I looked after the British Hospital for Mothers and Babies, which till then was looked after by midwives, and it was explained to me that if they thought a labour would be difficult they preferred induction of trial labour to waiting to see how difficult it might become. Furthermore, the hospital was badly damaged and half the patients had to be sent to the country to await the onset of labour—or to be induced. We have at this hospital, therefore, a very large experience of surgical induction, and, since the unfortunate suggestion has been made that natural delivery is bought at the expense of cerebral damage (doubly unfortunate in that the authors imply they have no knowledge of induction), I append the hospital's results for the last five consecutive years, in the belief that these results compare favourably with those of any maternity hospital in the country, in spite of (or because of) the very high incidence of induction.

Year	Total Deliveries	Induction Rate %	S.B. Rate per Thousand	N.N.D. Rate per Thousand	Forceps Rate %	C.S. Rate %
1947	1,373	18·1	16·5	10·6	5·1	1·06
1948	1,269	8·4	22·7	18·0	5·4	1·3
1949	1,414	19·4	23·1	22·2	7·3	1·48
1950	1,375	19·2	15·2	10·5	4·7	1·3
1951	1,400	29·2	21·3	21·0	6·8	1·8
Yearly average ..	1,366	19·1	19·76	16·46	5·86	1·39

N.B.—This hospital accepts all emergencies and premature babies from its catchment area.

I would not, of course, advocate that 20% of women should be induced, and have explained the reason for this high figure. Circumstances have simply provided the opportunity for observing the results of this practice on a large scale.—I am, etc.,

London, S.E.3. C. K. VARTAN.

SIR,—I was flattered to read (June 28, p. 1408) that Dr. S. Josephs had called up reinforcements in the form of a statistician and an obstetrician in order to defend his finding that "there is no sign of a growth curve (of the biparietal diameter) between the 36th and 40th weeks of pregnancy." I was also pleased to note that Dr. Josephs and his allies now appear to be less sure that *no* growth takes place in the biparietal diameter of the foetal head in the last four weeks of pregnancy, from their latest statement that "in the four weeks preceding delivery at term the amount of growth is *negligible*." One millimetre a week increase in the biparietal diameter may well be negligible in many obstetric and radiological assessments, but nevertheless it is growth.

Regarding my "weaknesses," the facts that (1) the date of the last menstrual period may on occasions bear no relationship to date of conception and that (2) each head was measured only once were realized and therefore over 1,000 heads were measured. The statistical criticism (3) will be answered in another paper (in press) which gives details of the biparietal and other foetal head diameters. Point (4) has no bearing at all on my findings, though I was in error in using the word "uniform" when applied to the rate of descent of the foetal head into the pelvis. The final criticism (5) that correct prediction of the outcome of labour from pelvic cephalometry at the 36th week of gestation (is this estimated from the last menstrual period or as the 4th week before delivery at term ?) can usually be made is answered by the failure of radiology to predict "mouldability," this property of the foetal head being able to counteract, for a short while, some or all of the growth which takes place in any diameter of the foetal head between the 36th week and term.

Unfortunately Dr. Josephs *et al.* have made no mention of the fact that Dr. Derk Crichton (April 26, p. 922) by *radiological* means found that growth occurred in the last weeks of pregnancy, his mean values for increase in the biparietal diameter agreeing with mine.

Dr. Josephs compared his radiological findings with calliper measurements and found that the former method of measurement gave readings which exceeded those of the calliper by an average of 0.02 in. (0.5 mm.). It is difficult to understand the direction of this discrepancy, because in the radiological method the measurement was presumably of foetal *skull*, and the callipers measure foetal skull, plus skin, subcutaneous fat, etc., in other words foetal *head*. Perhaps Dr. Josephs's new method of cephalometry takes into account the soft tissues overlying the skull.—I am, etc.,

London, S.E.1. I. MACDONALD.

Judging Tuberculin Patch Tests

SIR,—In your leading article on tuberculous infection (June 28, p. 1397) you have discussed the recent tuberculin survey made by the Tuberculosis Committee of the Medical Research Council, mentioning the uniformity of technique and interpretation of tuberculin reactions obtained. In the report of the Calder Valley survey (June 28, p. 1390) which was part of the national survey, the patch tests were read 48 to 72 hours after the application of the jelly, but in the report of the national survey (*Lancet*, 1952, **1**, 775) it is

stated that patch tests were read 72 to 96 hours after the application of the jelly. The criterion of positiveness in the Calder Valley survey was an area of oedema with surrounding erythema at least 5 mm. in diameter at the site of the test, but in the national survey report the positive reaction was described as an area of raised erythema with or without vesiculation. A note is added that Dick (*British Medical Journal*, 1950, **2**, 141) revised this standard after the survey to read: "4 or more vesicles at the site of application are read as a positive reaction. Less vesiculation . . . is classified as negative."

In the *Bulletin* of W.H.O. (1950, **2**, 364) the Moro patch test (which is comparable with the modified jelly test) is interpreted according to the number of papules seen at reading, but it is noted that in the instructions given by the State Serum Institute, Copenhagen, it is laid down that for a result to be regarded as positive the skin at the site of the test should be very red and covered with spots the size of a pin-head. In the leaflet of instructions which accompanies Messrs. Allen and Hanburys' tuberculin jelly the following advice is given: "In reading the test erythema should be disregarded. The positive reaction appears as a slightly vesicular mark in the area in which the jelly has been applied."

Here, then, are many counsels, and, as with the extension of B.C.G. vaccination it is more than ever desirable to have a common objective standard of interpretation of the tuberculin reaction, perhaps you would permit those of your readers who have experience of this matter to set out their criteria for the classification of reactions to the patch test. It is my own opinion that reading of the result should not be done earlier than 72 hours after application of the jelly, for earlier reading may cause reactors to be recorded as non-reactors, and observation of the reaction of over 2,000 B.C.G. vaccinated children to the modified patch test leads me to regard the occurrence of vesiculation with or without erythema as the criterion by which the result should be judged.—I am, etc.,

Belfast. H. G. CALWELL.

Treatment of Hypoprothrombinaemic Haemorrhages

SIR,—On reading the *British Medical Journal* of March 15 we were surprised to see on page 603 the strong attack of Dr. H. Lempert against the use of vitamin K_1. We are amazed that anyone can condemn a medication without having tried it himself and without publishing a failure in its use. Two points seem particularly disputable to us in the slightly free criticisms of Dr. Lempert:

(1) To admit that only those hypoprothrombinaemias below 10% are dangerous. We have shown, with Mlle Le Bolloch, that any hypoprothrombinaemia is dangerous in which the sensitivity of the plasma to heparin is prolonged to more than double that of a control plasma (*in vitro* heparin tolerance test). Thus a patient may bleed with a prothrombin level of 30%, or thrombose with a level of 10% (depending on the degree of hypercoagulability to be counterbalanced by the hypoprothrombinaemia).

(2) To admit that one cannot judge the activity of a medication except when the situation is "hopeless." In the case of hypoprothrombinaemia, laboratory tests are sufficiently precise to permit the comparative evaluation of vitamin K_2 and vitamin K_1.

But to answer the request of Dr. Lempert we can add to the publication of A. S. Douglas and A. Brown a personal observation recently reported to the French Society of Haematology (May, 1952). It is the case of a patient treated during 10 days after multiple intestinal interventions with "tromexan" in average doses. The prothrombin level fell to 13%, heparin tolerance time *in vitro* was very prolonged (incoagulable with 1 unit, control 12 min. 30 secs.) Multiple haemorrhages, ecchymoses, haematuria, intestinal haemorrhages. Tromexan was discontinued, fresh blood perfused (900 ml. in total), and vitamin K_2 injected (10 mg. per day to a total of 120 mg.). The hypoprothrombinaemia and haemorrhages persisted, and three weeks after the tromexan had been discontinued the prothrombin level remained at 20% in spite of treatment. At this time 50 mg. of an emulsion of vitamin K_1 was injected intravenously. Within 24 hours all tests had returned to normal and the haemorrhages had stopped.

Here the haemorrhages were more serious because of their repetition than because of their abundance, but the advantage of vitamin K_1, which Dr. Lempert puts in doubt, appears to be beyond question, and confirms the numerous publications on that subject.—We are, etc.,

J. P. SOULIER.
M. J. LARRIEU.
L. J. WEBER.

Paris, France.

Inhibiting Hyaluronidase in Rheumatoid Arthritis

SIR,—In a recent annotation (May 31, p. 1183) you refer to the work of Martin and Beiler, who observed the inhibitory effect of various vitamin-P compounds, especially hesperidin, on the depolymerization of hyaluronic acid by testicular hyaluronidase. Their results prompt me to make the following observations.

There appears to be increasing evidence to suggest that the basis of rheumatoid disease is a molecular disarrangement of the collagen–polysaccharide complex in the connective tissues of the body. Therefore one can assume that there is a disharmony in the enzyme–polysaccharide mechanism which normally seems to be responsible for the maintenance of a continuous cycle of: enzymatic hydrolysis of mucopolysaccharides, diffusion of nutriment through the resulting spreading response, reconstitution of the polysaccharide substrate through cellular activity.

The limited successes obtained with the application of salicylates in the treatment of rheumatoid disorders, or the dramatic results which appear after the administration of cortisone and A.C.T.H. to sufferers from rheumatoid arthritis, exhibit one common phenomenon: the reduction in the spreading response of the connective tissues. This seems to indicate the presence of a common denominator—namely, an antihyaluronidase factor. Whether the apparent antihyaluronidase activity of the salicylates is mediated through the suprarenal cortex, or is a direct one, is not certain. Similarly, the exact nature of these hyaluronidase inhibitors is at present unknown. The reduced spreading response may simply be the expression of excessive liberation of heparin, as it is known that this substance is an effective hyaluronidase inhibitor. On the other hand, one can assume the liberation of other more specific hyaluronidase inhibitors also.

On the basis of these considerations, one feels that laboratory and clinical trials with the systemic administration of substances of direct antihyaluronidase activity—instead of their indirect production by the body through treatment with salicylates, cortisone, or A.C.T.H.—is by now justified. This approach, if successful, would probably represent a more straightforward attack on the disease at the cellular level, and investigations carried out on these lines could lead us more rapidly, not only to the ultimate understanding of the disease, but also to a more satisfactory and economic method of treatment.—I am, etc.,

Glasgow. PAUL BACSICH.

Syringe Service in Practice

SIR,—May I offer a reply to one of the questions raised by Dr. John H. Hunt in his interesting article on a College of General Practice (*Supplement*, June 28, p. 335)—namely, on how to run a simple, effective syringe service in general practice?

I use all-glass syringes. These after thorough cleaning and drying are very lightly lubricated with liquid paraffin, wrapped in several layers of gauze, and packed, together with suitable needles, in small tins. These tins are then placed in a Prestige Wonder Oven and the temperature raised very slowly to 160° C. over a small gas flame. This temperature is maintained for one hour. There is slight discoloration of the gauze, but no charring.

I am at present conducting experiments in collaboration with the makers of the Wonder Oven to ensure that the correct temperature is reached and maintained within the containers. I am also carrying out bacteriological tests, and hope to publish the results shortly.—I am, etc.,

Colwich, Staffs. B. R. S. MAINWARING.

Intra-ocular Acrylic Lenses

SIR,—Your annotation (May 24, p. 1121) well describes the difficulties which may beset the aphakic patient, and great hopes for the future are centred on the operation introduced and described by Mr. H. Ridley. In the meantime the uses of the contact lens in unilateral and bilateral aphakia must be kept in proper perspective and not underestimated, despite its limitations. I cannot subscribe to the view that the general experience in practice is that the single eye with the contact lens soon falls into desuetude. Where the other eye has normal visual acuity, the end result depends primarily on the state of binocular vision before the eye injury or disease causing the cataract, and particularly on the visual acuity of the aphakic eye approximating to that of the good eye. But, in children especially, a short course of orthoptic exercises is indicated, in order to strengthen the fusional amplitude. Muscle surgery has to be considered when there has been a lapse of time and the deviation is larger. Children with unilateral aphakia, following needling for traumatic cataract, must have contact lenses. Just as soon as the eye is quiet, a contact lens should be fitted and straight eyes and binocular vision maintained. When a unilateral aphakic patient is using an eye with a partial cataract and visual acuity as low as 6/24, in my opinion this state of affairs results from the non-dominant eye being the one rendered aphakic. It is essential to deal with the dominant eye. A contact lens may be accepted by the elderly aphakic patient when a spectacle lens cannot be tolerated. It is important to select the patient who is likely to persevere and make a success of the contact lens or lenses. All depends on the right incentive, and surely in cases where straight eyes and binocular vision are at stake there should be incentive enough.

Most of the imperfections of aphakia spectacles have been enumerated in your annotation. These drawbacks do not apply to contact lenses, as they move with the eyes in all directions; images are reduced to near normal, and there is only slight magnification of the cornea. I think all aphakic patients who are intelligent and active, and whose job warrants it, should be recommended for contact lenses. Until the use of the intra-ocular acrylic lens has become universal, as is hoped it may, utilization of the contact lens in aphakia should be encouraged and given a fair trial.—I am, etc.,

Hove, Sussex. J. M. ANDERSON.

Dupuytren's Contracture

SIR,—In his interesting paper Mr. H. J. Richards (June 21, p. 1328) stated that in a series of 46 cases of Dupuytren's contracture treated solely with vitamin E no improvement was noted in any case. He devised an accurate method of estimating degrees of deformity before and after treatment by employment of plaster-of-Paris casts, to remove the element of human error in assessing these cases, and he was unable to record any progress.

In our clinical review of Dupuytren's contracture, J. Hunter Annan and I (*Ann. Surg.*, 1951, **134**, 186), impressed with the results obtained with vitamin E therapy described by G. R. Thomson (*British Medical Journal*, 1949, **2**, 1382) and clearly shown in his excellent photographs, used vitamin E in a small number of cases. We employed it in 12 patients post-operatively and as a sole treatment in two. A course of four 50-mg. tablets of tocopherol acetate was given daily for eight to twelve weeks. Our impression was that vitamin E was of some benefit because it appeared to facilitate earlier free movement of the fingers, and to soften the operation scar and also resolve the sclerogenous condition of the skin. In one case small residual post-operative nodules completely disappeared Of the two cases treated with vitamin E alone, one showed no improvement; in the other (a man aged 72) the right fourth finger, which was well flexed towards the palm, became almost straight after 16 weeks of treatment.

Since then we have continued to use vitamin E as a routine in every case post-operatively, but have not yet made a further assessment of our results. One of these cases, however, a woman aged 69, may perhaps be mentioned. On January 3, 1950, her left fifth finger was amputated for a gross contracture deformity due to Dupuytren's contracture. On February 23 this year she reported with a contracture of the palmar fascia in the left palm, passing to the fourth finger, and beginning to hamper the finger's function; contracture was also starting in the right palm at the base of the fourth and fifth fingers. She was put on 200 mg. tocopherol acetate daily. On March 20 she stated that her left fourth finger was not nearly as stiff as before treatment; the puckering on the ulnar side of this finger was less, and she felt both hands more mobile. Tocopherol acetate has been continued daily up to the present time of writing (June 23) without any other treatment. There has been a steady progress, and further operation is no longer considered.

Though not making any special claims for vitamin E, I do consider on these findings that it has a definite place in the treatment of Dupuytren's contracture. It is perhaps of most value in the post-operative phase, after dissection of the affected fascia.—I am, etc.,

Edinburgh. JAMES A. ROSS.

Normal Position of the Uterus

SIR,—The article by Drs. N. C. Louros and N. M. Kaïris entitled "Ovarian dysfunction and hepatocholecystopathy in association with retrodisplacement of the uterus" (July 5, p. 20) fills me with dismay, alarm, and despondency. The picture which it conjures up in my mind is that of masses of Athenian women patiently waiting to have their displaced uteri hitched up in a "normal" position. For a very long time now I have been firmly of the opinion that, with very few exceptions, and of course excluding prolapse, the position of the uterus is of no more importance than whether one parts one's hair on the right side or the left. There is nothing in this article to make me alter that opinion.—I am, etc.,

London, W.1. DOUGLAS G. WILSON CLYNE.

Urine Wanted

SIR,—My colleagues and I at University College Hospital are making a chemical study of urines from patients with acute porphyria. Our work has come to the stage when we need large supplies of material. I would be very grateful if anyone having knowledge of a case of acute porphyria would contact me as soon as possible.—I am, etc.,

Department of Chemical Pathology, U.C.H. Medical School, University Street, London, W.C.1. C. RIMINGTON.

POINTS FROM LETTERS

Sign of Pregnancy

Dr. A. C. EDWARDS (Bristol) writes: Your readers may be interested in the following early sign of pregnancy. I can find no mention of it in the literature or standard textbooks. Related by a patient: "Doctor, I *must* be pregnant—until now I always had to wear falsies, but now I have been able to throw them away."

Dose of Relaxant During Heat Wave

Dr. H. H. WEISZ (St. Olave's Hospital, Lower Road, London, S.E.16) writes: During the recent heat wave I made the following observation in two cases, and I would be interested to know through the medium of the *Journal* whether any other anaesthetist has had a similar experience. The temperature of the operating theatre was 86° F. (30° C.). An obese woman aged 63 was to have a Billroth I partial gastrectomy for leiomyoma. Premedication: atropine 1/100 gr. (0.65 mg.), morphine 1/6 gr. (11 mg.), one hour before the time of operation; induction with thiopentone 0.5 g. in 5% solution; D-tubocurarine chloride 20 mg. The patient was not relaxed enough for intubation by direct vision. She required 40 mg. to achieve this. A man of 29, undergoing partial gastrectomy for duodenal ulcer, had premedication "omnopon" ¼ gr. (22 mg.), scopolamine 1/150 gr. (0.43 mg.), one and a half hours pre-operatively; induction by thiopentone 0.65 g., curare 25 mg. The patient was not relaxed enough to open his mouth for insertion of the laryngoscope. He required 45 mg. Another man, aged 39, undergoing the same operation, also required approximately double the usual dose.

Obituary

Sir HUGH CAIRNS, K.B.E., D.M., F.R.C.S.

Sir Hugh Cairns, Nuffield Professor of Surgery in the University of Oxford, surgeon to the Radcliffe Infirmary, consulting surgeon to the London Hospital, and honorary consulting surgeon to the Army, died in the Radcliffe Infirmary on July 18 at the age of 56. His premature death is a sad and distressing loss to British surgery and to neurosurgery everywhere.

In his branch of surgery Cairns was an outstanding figure, of world-wide reputation, to whom many, even in far distant countries, had turned in time of need.

[Walter Stoneman, London

His work was characterized by his scrupulous care of the individual patient before, during, and after operation. This, combined with technical skill, sure touch, and sound operative judgment, was the basis of his clinical success. To this thoroughness and technical skill was added a sympathetic understanding of the human problems involved, an understanding which was a source of strength to both surgeon and patient.

Cairns was highly conscious of the importance of original investigation in bringing life and meaning to a university appointment, and every encouragement was given to original work in his department. His own observations on frontal sinus fracture and its relation to infections of the brain, his development of the use of antibiotics in cerebral injuries and in the various forms of meningitis, and his recent critical attempts to rationalize and localize the operation of leucotomy were important contributions to our knowledge. An enumeration of all this work reveals his compelling urge—the welfare of the patient.

But it was not through his original observations that Cairns's influence was most widely felt. He had a genius for the training of assistants, and his crusading spirit demanded from them his own rigorous standards of patient care. In his early days, at the London Hospital and later in Oxford, Cairns attracted to himself a steady stream of postgraduate assistants both from this country and abroad. To these young men he gave not only the stimulus of his own enthusiasm but help, wise counsel, and the not-to-be-forgotten privilege of his friendship. Now many of these former assistants occupy high places throughout the neurosurgical world.

No account of Cairns's achievements would be complete which did not refer to his general care of cerebral cases and of head injuries in particular. One had only to see him in his wards to realize the affection and admiration he inspired in patients, assistants, and nursing staff. It is perhaps true to say that no other man has contributed more to our knowledge of the organized care of these difficult cases.

To his friends the death of Hugh Cairns is a tragic blow. His never-failing friendship, his enthusiasm, his happy smile, his wise judgment, the whole vibrant personality will be sorely missed by all who knew him.

Hugh William Bell Cairns was born on June 26, 1896, in South Australia. He was educated at Adelaide High School and Adelaide University, where he was an exhibitioner and a Davies-Thomas and Everard Scholar. During the 1914–18 war he served in the Australian Army Medical Corps, first as a private and later, after graduating M.B., B.S. in 1917, with commissioned rank as captain.

After the war he came to Oxford as a Rhodes Scholar of Balliol, of which college he subsequently became a Fellow in 1937. In 1920 he was a member of the Oxford University crew, rowing bow in the boat race of that year. Cairns became a Fellow of the Royal College of Surgeons in 1921, and from that year until 1925 he held various resident appointments, first at the Radcliffe Infirmary and later at the London Hospital, where among other posts he was house-physician to Sir Robert Hutchison and pathology assistant to Hubert Turnbull. To the teaching and inspiration of these two men he always expressed his indebtedness. Cairns was appointed assistant to the surgical unit at the London Hospital, and while holding this post he was, in 1925, Hunterian Professor of the Royal College of Surgeons, the title of his lecture being "Neoplasms of the Testicle."

In 1926–7 Cairns went to the United States as a Rockefeller Travelling Fellow. Most of his time in America was spent at the Peter Bent Brigham Hospital in Boston, where he worked as an assistant to Harvey Cushing, the American pioneer in brain surgery. A deep mutual appreciation and close friendship developed between these two men, and Cairns returned to England and the London Hospital in 1928 dedicated to the task of developing neurosurgery in England along the lines so successfully employed by Cushing and his pupils in America. His enthusiasm and energy were boundless and soon resulted in the formation of a department of neurosurgery at the London Hospital, Cairns being appointed an assistant surgeon to the hospital and surgeon in charge of the department. His reputation was quickly established, and the new department soon began to attract a steady flow of postgraduate assistants. In 1931 Cairns was elected honorary surgeon to the Hospital for Paralysis and Epilepsy, Maida Vale, a post he relinquished in 1934 when he was elected surgeon to the National Hospital for Nervous Diseases, Queen Square. In the main, however, Cairns confined his activities during this period to his department at the London Hospital. As his reputation grew his private practice rapidly increased, and soon he began to see in it a menace to the work and to the kind of life which he had planned. He began to grow restive in London.

The development of a clinical school at Oxford, made possible by the splendid generosity of Lord Nuffield, was largely due to Cairns's inspiration. It was his enthusiasm that inspired Sir Farquhar Buzzard, who first publicly raised the question in his Presidential Address at the annual meeting of the B.M.A. in 1936. Cairns's memorandum, complete even to budgetary estimates—not too accurate, alas, in the light of events not then to be foreseen—was later given to Lord Nuffield. When the school was established at the Radcliffe Infirmary in 1937 Cairns was the first appointed Nuffield Professor. The acceptance of this appointment meant a financial sacrifice, but he was very happy to go to Oxford. By the terms of his appointment he was allowed some private practice, but he was pro-

tected from being overwhelmed by practice, as had already begun to happen in London. Shortly after he had taken up this new appointment the University of Oxford conferred on him the degrees of M.A. and D.M. The organization of the new department, including building of new wards, was carried through with his usual energy and enthusiasm. Quickly it became a leading centre of neurosurgery in this country.

With the outbreak of war in 1939 the treatment of head injuries became a major problem. Cairns was appointed adviser on head injuries to the Ministry of Health and later honorary consulting surgeon to the Army. In the first year of the war, before heavy fighting occurred, head injury to motor-cyclists was one of the commonest serious injuries among Service men. Cairns investigated various types of crash helmet (*B.M.J.*, 1941, **2**, 465) and was able to persuade the Army to make the use of a crash helmet by motor-cyclists compulsory—a measure which led to a great reduction in this serious injury, and which was adopted by other armies. When an Army hospital for head injuries was established in St. Hugh's College, Oxford, Cairns was its moving spirit and driving force. He threw all his energy, experience, and understanding into the organization of the care and rehabilitation of these difficult cases. For his services to the Army, in which he held the rank of brigadier, Cairns was created K.B.E. in 1946.

During the war Cairns had been active in developing the use and technique of penicillin treatment in war wounds and especially in head injuries. Later he studied the treatment of pneumococcal meningitis with penicillin and of tuberculous meningitis with streptomycin. Shortly before his final illness he became interested in the operation of leucotomy, attempting to rationalize and localize the standard procedure of Egas Moniz by confining the leucotomy to fibres arising only in the fronto-thalamic projection.

Cairns was in great demand at international conferences and travelled widely to attend them; among the countries he visited were America, Australia, Sweden, Holland, France, Portugal, and Spain. He was the first Sims Commonwealth Professor appointed by the Royal College of Surgeons, and it was while he was visiting Australia in that capacity in 1947 that he was elected an honorary Fellow of the Royal Australasian College of Surgeons, and given the honorary degree of M.D. at Adelaide University.

In 1921 Cairns married Barbara, youngest daughter of the late A. L. Smith, then Master of Balliol. There were two sons and two daughters of the marriage. When Cairns was working in London he and his family lived near Loughton on the edge of Epping Forest. On moving to Oxford in 1937 they settled in Charlbury Road, where they kept open house, especially for the young. Cairns's family life was a particularly happy one.—A. W. M. E.

One of Sir Hugh Cairns's old pupils writes: For most of his colleagues it will be hard to realize that Hugh Cairns is no longer with us. His rugged frame and terrific energy seemed almost indestructible, and he was just approaching the peak of his prowess when he was suddenly struck by his final illness seven months ago. His many pupils in this country and abroad will always remember him as "the Chief," but he was as well their devoted friend to whom they could always turn for assistance and advice in the sure knowledge of a generous response.

Cairns was above all a teacher, not in the didactic sense but by precept and example. Just as Cushing had left his imprint on him, Cairns left his mark on all of his pupils, and he derived the greatest pleasure from watching their progress. During the hectic years in London he gave the impression of being a stern master, but beneath the surface of hard work and rigid discipline there was a warm heart and keen appreciation of effort. No one was ever ticked off for an error of judgment or mistaken diagnosis unless it was the result of lazy thought or action. It was in the busy practice of the London Hospital that he established his reputation and, by the standards of those days, in a comparatively short time. He had the gift of investing every case with a particular interest, and his system of records made the material easily available for future reference. Each patient was followed up, and over the years a useful body of information about the natural history of neurological diseases has accumulated. He had a great respect for pathology, and he often spoke of his association with the pathology department at the London as being one of the most valuable parts of his own training.

When he left London for Oxford a certain mellowing was soon apparent. He worked as hard—as did everyone else—but it was all done in one place and more efficiently than had been possible in London. There was time for an occasional round of golf at Huntercombe, tennis in his own garden, wooding expeditions on Sunday afternoons, and family holidays at South Stoke and Bamburgh. He enjoyed giving parties and arranging functions and was an excellent host. One of his happiest memories was the occasion of Cushing's visit to Oxford to receive his honorary degree, when they were surrounded by mutual friends from all over the world. But these activities were only adornments of his work, and his output was increasing all the time.

The war interrupted much of this pleasant way of living. He was thrown into the development of the undergraduate clinical school in Oxford, and this remained one of his chief interests. There were difficulties, and it is not surprising that the motives of one with such a dynamic personality should be occasionally misunderstood, but his interests were always the best interests of medicine in general and the Oxford school in particular, as he saw them. His influence in the councils of his colleagues increased steadily during and after the war. At the same time the war presented the problem of head injuries, and with Sir Charles Symonds he developed an organization which was unequalled anywhere. The same qualities which had made a success of his departments in London and Oxford found even more fruitful application in the larger field of battle casualties. Even during these strenuous years he never lost sight of the value of records or the importance of training young surgeons, and there was about St. Hugh's much of the atmosphere of a teaching hospital.

After the war he had to spend more time on administration and ambassadorial duties, and there was less time for routine clinical work. This was a considerable loss, because he was essentially a good doctor and at his best when immersed in clinical problems and dealing with ill people and their relatives. But he was able to spend more time on the scientific projects in which he was interested, and his approach became much more philosophical. Although he had had no formal training in research techniques he had learned a great deal by study and observation, and his own researches were models of thoroughness, clarity, and critical assessment. He was to the end a student, eager to learn from anyone who knew more about a subject than he did, and his interests were by no means confined to his own specialty. It was these qualities, together with his charming personality, which made him such a good representative of British medicine.

The brisk walk, the flashing eyes, the firm lower jaw, and the quick smile are no longer with us, but none of us can ever forget the indomitable spirit which has been and will remain our inspiration.

We are greatly indebted to Sir GEOFFREY JEFFERSON, F.R.S., for the following appreciation: When people of the present writer's age die there may be regrets, but there is never the poignant feeling of unfulfilment that comes with the death of a younger man—shorn of the years in which to express himself fully and to deploy his gifts to the utmost. The

death of Sir Hugh Cairns is as sad a happening as could well be. It is not merely sad in the sense that we have lost from our midst a man whose company delighted us, but sad because British surgery has lost one of its most arresting figures so early, before he had given to the world what he had in store.

He had of course already accomplished so much that it is hard to know where to begin in writing about him, and in fact it would be possible to tell his story in several different ways, all of them correct. The young and handsome Australian from Adelaide, recently a Rhodes Scholar, who first made his mark at the London Hospital in the mid-nineteen-twenties, had in 15 years become a national and almost as quickly an international figure. Hugh Cairns's influence was founded on the fact that he was supremely good at his work. He had a well-balanced and critical mind, but, critical though he was, he could be outstandingly generous in his appreciation of good qualities in others where he could perceive them. Thinking of him now and making this too-early judgment of him, one sees that it was remarkable that anyone should have combined all his gifts. I knew no one better as a surgeon, and scarcely anyone anywhere as good. I do not mean that he was brilliant to watch in the operating theatre, but that he gave the onlookers such confidence. As with Harvey Cushing, the utmost care had so obviously been taken in the working up of the case. Hugh Cairns demanded a very high level of performance from everyone associated with him. Some of his pupils have become leaders in neurosurgery in foreign lands.

Cairns prided himself on being "a good doctor." This lesson he had been taught by Harvey Cushing, who had it from Sir William Osler. Cushing used to say that you could tell whether a man was a good surgeon by noticing whether he personally saw that his patients were comfortable and was not too high-and-mighty to arrange their pillows. Hugh Cairns was fond of repeating this. It is not so small a thing as it sounds. It would be hard to say whether Harvey Cushing had a favourite above all others among his pupils, but certainly Cushing liked and admired no one more, recognizing the fibre in him. Cairns had a year in Boston as a Rockefeller Fellow in 1926–7, when he had already been appointed to the London Hospital. He had been a Rhodes Scholar at Balliol, a college that he loved, and where, to his pride, he was elected to a Fellowship in 1937. When he came back from the United States in 1927 he was resolved to devote himself entirely to neurosurgery, and, since no one had yet done that, many advised against it. However, his expert knowledge and his easy manners quickly triumphed.

He was well integrated as a person. I remember once making some remark about normality to Cairns, who replied that he thought that he himself was very normal. This estimate of himself was quite true. He was as normal a person as one could hope to know, so stable was he, so even tempered, so free from moods. But underneath he was a high-powered individual with immense ambitions to make his work and all about him as nearly perfect as he could. This he did by his own innate qualities and by collecting to him the best people he could find. This laid him open sometimes to criticism, for if he wanted something he usually got it. I never really found out whether he realized always that others saw easily through some of his schemes. He was not so simple as he thought he was. But he was simple in this, that he had a simple standard—perfection. Surely, he thought, no one can object to that. Nor can they. Rather of a piece was Hugh Cairns's estimate of his own ability. During the 25 years that we knew one other he said to me several times, "You know, I don't think I'm clever; I'm quite ordinary really." That again was true in a way. But Hugh Cairns's ordinariness was another man's excellence. He had in fact plenty of imagination, and he was creative. I suppose that what he meant by not being clever was not being fanciful. He was never that in his work, though he could be delightfully so in the family circle. He knew well enough his power to get things done, nor did he balk at unconventional approaches if they could attain ends: in that his Australian upbringing undoubtedly conditioned him, so that he was not prepared to accept customary channels if they seemed to him to be stupid or impeding. Nothing illustrates this better than the leading part he played in the formation of the new clinical school at Oxford in 1937. This was an exciting project, and Lord Nuffield's quick appreciation of the possibilities and his instant generosity made the dream come true almost as soon as it was dreamed. The Oxford clinical school was to be closely linked with the other university science departments, and a new and more scientifically trained doctor was to emerge. Somehow that was never quite achieved.

To the Army Cairns gave such services that they can never be over-praised. It is to the Army's credit that the leaders approved so readily the intelligence behind Hugh Cairns's unconventional approach to military planning. It was most appropriate that he should have returned to Australia and visited South Africa as Sims Professor in 1947–8. Occasions will surely arrive when his contribution to science, to our knowledge of the nervous system, to medical education, to his university of Oxford, to the creation of his superb unit at the Radcliffe Infirmary, and particularly to the wounded soldier can be told at proper length.

It is difficult to keep private grief out of a public message. But I and all of us cannot but most bitterly lament the departure of a character of such integrity, such power, such courage, and such charm. The next 10 years or so, his lost years, would have seen the real flowering of all that he had striven for so hard and so long. However, there is this to comfort us—men die, but those who have created something live on to influence other generations.

Illness unmasks a man, and in his last illness the true goodness and bravery of Hugh Cairns shone like a flame. His marriage to Barbara Smith, one of the remarkable children of a remarkable man, the then Master of Balliol, brought him such happiness as not everyone achieves. She and he were a beautifully matched pair. "Life is a pure flame," wrote Sir Thomas Browne, "and we live by an invisible sun within us." Hugh Cairns's sun has gone down, and it is dusk for more than him.

R. W. CRAIG, O.B.E., M.D., F.R.C.P.Ed.

Dr. Robert William Craig, who died in Edinburgh on July 15 after a brief illness, was well known in many spheres, but perhaps most widely known as Scottish Secretary of the B.M.A. He was the second holder of this office, succeeding the late Dr. J. R. Drever in 1931 and carrying on well over the normal retiring age until the second world war ended. He succeeded his father in an extensive country practice in Midlothian, which he left, perhaps with some reluctance, to become Scottish Medical Secretary. He was essentially the man for that office, having been successively chairman of his Lothians Division, president of the Edinburgh and Lothians Branch, and deputy chairman of the Insurance Acts Sub-committee (Scotland). He was thus conversant with B.M.A. affairs in Scotland. Gifted with infinite patience and tact, he accomplished much for the Association.

[*Kemp, Dalkeith*

Robert Craig was born on December 27, 1879, the son of the late Dr. Archibald Craig, of Pathead Ford, Midlothian. His early education was at the Royal High School, which he reached by leaving home daily at an early hour and driving to Dalkeith, where he took a

train for Edinburgh. Moving on to Edinburgh University in 1898, he graduated M.B., Ch.B. in 1903, and then became successively resident physician in the Royal Infirmary, where his chief was Professor John Wyllie, resident surgeon in the Simpson Memorial Maternity Hospital, and resident physician in the Royal Hospital for Sick Children, where he worked under Professor John Thomson. He proceeded M.D. in 1907, and in later years he was elected a Fellow of the Royal College of Physicians and a Fellow of the Royal Society of Edinburgh.

Craig first assisted his father and then himself took over a large and extensive country practice. His stories of his early days, which were in the now almost forgotten era of the horse and trap, had a flavour of Gideon Gray. His father was one of the earliest doctors to use a car, and Robert Craig could relate many experiences of breakdowns, more often due to the weather than the car, for this was an Albion, a sturdy make, which ran a phenomenal number of miles. There were incidents —perhaps not altogether unpleasing to the local countrymen—when horses had to pull the car out of snowdrifts: for Pathhead lies high in the Moorfoot Hills.

Possessing all the attributes of a family doctor of the best type, Craig had a sympathetic but reassuring manner, an inborn kindliness, and a quiet humour: his skill and wisdom were nurtured by experience, uprightness, and integrity. Even with a busy practice he was able to devote time to public affairs and was for many years a member of the Midlothian education committee and convener of its medical committee.

A. F. W. M. writes: Having known Craig as a country doctor, though my closer contacts were during his Scottish Secretaryship, I often wondered if he did not at times look back wistfully to his days in practice. Certainly the ranks of general medicine lost a valuable member when he made an office his headquarters. It was, however, his rich experience as a doctor which gave him the faculty of rendering such good service to the B.M.A. He was a member of the Cathcart Committee, which produced in 1936 the voluminous and valuable "Report on Scottish Health Services"—a report which gave an analysis of a wealth of information and contained recommendations which still are worthy of serious consideration.

In later years Craig's health was such as to necessitate reduction of his activities, for even after his retirement he was an active man. He was vice-chairman of the S.E. Scotland Regional Hospital Board from its inception, and there, with his chairman, the late Dr. Greenlees, he worked long hours. Indeed, he did more than his health warranted, but he never spared himself in what he regarded as his duty, and only with difficulty was he persuaded to give up some of his many commitments. From 1946 till the time of his death he was a member of the General Medical Council as a direct representative from Scotland. He took a great interest in the welfare of the aged and was chairman of the Scottish Old People's Welfare Committee. In 1941 he was appointed O.B.E., a recognition of his many services to the community which gave pleasure to his colleagues as well as himself.

Essentially Craig was a man whose character inspired friendship, and his friendships were sincere and lasting. His wife was an ideal helpmate for him: interested in all that interested him, caring for him, and encouraging him, she made his home lovely and doubled the cordiality of welcome to any friend who visited it. To her the sympathies of all his friends are extended. A memorial service was held in the beautiful pre-Reformation Church of Crichton, of which he was an elder. This connexion he did not sever when he came to live within the city, for he continued a regular attender in the church which he had known so long and which he loved.

W. G. writes: It seems fitting that a Divisional secretary should add his tribute to the memory of Robert Craig (Bob to his many intimate friends). A man of high intellect and kindly disposition, he brought to the Scottish Secretaryship the very talents most needed in that post. He was bright and cheerful, with a keen sense of humour, and so humane that he made even the most timid feel completely at ease. This characteristic, I imagine, he inherited from his medical family and his years in rural general practice, where he was indeed "the beloved physician." His time at the Scottish Office of the B.M.A. was one of great activity and expansion, calling for sustained and onerous work, including the war years 1939 to 1945, but one never saw Robert Craig flustered. To his chairmen in committee he was a tower of strength, and his negotiations with officials were invariably satisfactory in the end. He had many interests cognate to and outside the sphere of medicine, but of these he loved his garden best. He was scrupulously careful in both his work and his hobbies, and woe betide any poor daisy that dared to show face in his lawn. As a companion he was most unassuming and genial, and he shone as a host among his friends. Throughout his strenuous life he was most ably supported by his dear wife, who shared his every joy and sorrow, and to her we extend the deepest sympathy. "Well done, thou good and faithful servant; enter thou into thy rest," was never more aptly quoted than at the impressively simple service at his cremation at Warriston, Edinburgh.

Dr. ALFRED COX writes: The last time I saw Craig he was in a nursing-home in London recovering from an operation, but even in those unpromising circumstances he was in very good form. He gave me the usual impression of a man physically fit and full of energy, so it was a real shock when I was told of his death. I saw a good deal of him in B.M.A. circles at one time—first as a representative—and heard much of his work on the Scottish Committee. It therefore seemed quite natural when he was selected as Scottish Medical Secretary in 1931 to follow the first holder of that office—and a very good one—James Drever. Others are better qualified than I to testify to his work in Scotland. To me he was for a few years before my retirement a good friend and a most congenial colleague. When he left office in 1946 he told me he had no intention of joining the ranks of the really "retired," and the record of the offices he has held since that time proved how well he kept his word. I think one of his most engaging characteristics was his natural cheerfulness and humour and his obvious anxiety to be helpful. The Association and the profession in Scotland have every reason to be grateful for the skill with which he firmly established the Scottish office in the confidence and estimation of all he had to deal with—not least the non-medical bodies with whom he was officially brought into contact.

Dr. EDWARD WALKER writes: The word "beloved" is not one which the modern Briton uses readily or without embarrassment. Yet I feel it must have sprung into the minds of most of his many friends when they heard that Robert Craig was dead. For none could know Bob Craig—as he was to his contemporaries, or Robert as we of the younger generations knew him—without feeling in his presence an instinctive affection for this kindly, gentle, friendly man. It is with mingled pride and humility that I pay my tribute to the memory of my old friend and predecessor. In one way it has not been easy to succeed someone so universally loved and respected. Yet by the very nature of his qualities he left behind a legacy of good will in relationships, official and private, so remarkable that in many ways a formidable task has been made easy. It is, I sometimes think, not fully realized by those not closely associated with the administrative aspects of medicine how great was Robert Craig's contribution to the good name and true interests of his profession in his native land. Those who had the good fortune to know him will carry to the end of their days the heart-warming memory of a most lovable personality, those who worked with him of a loyal and considerate colleague.

"Statesman, yet friend of truth! of soul sincere,
In action faithful, and in honour clear;
Who broke no promise, served no private end,
Who gained no title, and who lost no friend."

JAMES O. D. WADE, O.B.E., M.S., F.R.C.S.

We record with regret the death in London, on July 9, of Mr. James O. D. Wade, the well-known Cardiff surgeon. He was 66 years of age. Mr. James Owen David Wade was born at Llanelly, Carmarthenshire, on November 8, 1885, and received his medical training at Charing Cross Hospital. He graduated M.B., B.S. from the University of London in 1909 and took the London conjoint diploma two years later. He became a Fellow of the Royal College of Surgeons of England in 1912, and obtained the London M.S. in the following year. After holding various house appointments in London he returned to South Wales during an era when a modern surgical service was being made available to the industrial areas, and he was soon appointed surgeon to the various miners' hospitals at Porth, Pontypridd, Caerphilly, Bridgend, and Mountain Ash. In 1918 he was elected assistant surgeon to the Cardiff Royal Infirmary, and he was senior surgeon for ten years.

During the war of 1914–18 he gave valuable service at the Prince of Wales Orthopaedic Hospital in Cardiff, for which he was appointed O.B.E. Hundreds of doctors who are now practising medicine in England and Wales will remember Wade as a demonstrator of anatomy at University College, Cardiff. His knowledge of human anatomy was profound and he was blessed with a unique memory. It is no exaggeration to say that he could quote, verbally, pages of *Cunningham's Textbook of Anatomy*, and his practical demonstrations made him a most popular demonstrator.

R. D. O. writes: From the beginning of his surgical career Wade's commitments were very heavy. His personal charm and surgical skill were additional factors that increased his responsibilities in private practice for many years. During the years between the two great wars it can be said without hesitation that nobody gave more faithful or more consistent service in the industrial valleys of South Wales than did James Wade. It was a common occurrence for him to spend several nights each week motoring from one hospital to another to perform on acute surgical emergencies, including colliery accidents. It is equally true to say that very few had more experience of the acute abdomen than he had. To the great regret of his friends he could never bring himself to make use of his pen to record his experiences of the various surgical problems he had encountered, but nobody could be more vivid in describing during a fireside chat his impressions of such occasions. The South Wales miner can honestly record Wade's services as those of a "good and faithful servant."

Much as one admired his surgical record, it was his devotion to his family that stood out as the hallmark of his character. In this he was greatly helped by the care and the companionship of his wife. Never was there a better husband or a prouder father; his home was his heaven. He sent his four sons through Repton, Cambridge, and University College Hospital, London, and their success gave him the kind of pleasure that a hard-working father deserves. We extend to his wife and to his sons our deepest sympathy.

We are indebted to Professor Lambert Rogers for the following appreciation: James Wade retired from the senior surgical staff of the Cardiff Royal Infirmary last year and for the previous ten years had been senior surgeon. A delightful colleague and a deft operator, who throughout his life maintained an interest in anatomy, which he had taught as a young man, he was always cheerful and kindly disposed to his friends, colleagues, and patients, and had a large and busy practice. For many years he had fought a battle against ill-health, but he never complained, except perhaps to say with a smile that the cold wind made him a bit short of breath. He was a great worker and much in demand at Cardiff and in the valleys around, and it was not unusual for him to deal with some ten or twelve major cases at one of the valley hospitals on a day when he also did a ward round and operated at the Royal Infirmary. Apart from surgery, his interests were football and people, which meant everyone he ever met, and above all his family. He was a grand family man, and his four sons, one of whom has succeeded him as a surgeon on the staff of the Cardiff Royal Infirmary, have followed him in his profession, three being surgeons and one a physician. Jimmy Wade, as he was lovingly known to his friends and colleagues over a wide area, added pleasure to many lives. It was always a happy meeting with him, in the corridors or wards of the old Royal Infirmary, and he will be missed by a great many in South Wales.

Medical Notes in Parliament

W.H.O. and Birth Control

Mr. DOUGLAS HOUGHTON on July 18 referred to the proceedings on population problems at the Committee on Programme and Budget of the fifth World Health Assembly in May, and the part taken by the United Kingdom delegate. He said that Committee on May 13 discussed two draft resolutions concerning population problems and the part which the World Health Organization might play in their solution. The mover of a Norwegian resolution had stated that the Committee should list and define the health aspects of world population problems in preparation for a World Population Conference, and should consider the relations between rapid population growth and health conditions, including mortality and morbidity, working capacity, and other factors. A second draft resolution was brought forward by a Belgian delegate. This stated that the problem of surplus population was essentially economic and social. A World Population Conference was to take place under United Nations auspices in 1953 or 1954. The resolution suggested that its findings should be awaited, and declared that from a strictly medical point of view the demographic problem called for no special examination on the part of the World Health Organization. The Norwegian resolution was supported by delegates of India, Ceylon, Sweden, Mexico, and the Philippines. The Indian delegate said experts felt the problem of over-population would bring disaster within 20 years unless adequate measures were taken. Italy, the Lebanon, Ireland, Spain, Costa Rica, and France supported the Belgian resolution. The delegate for Ireland suggested that, if birth control were included in the permanent programme of the World Health Organization, that body might lose some members. The United Kingdom delegate, Dr. Mackenzie, supported the Chairman's proposal that the question be postponed. The concluding sessions of the debate resulted in all the resolutions being withdrawn. Since then the Minister of Health, in a letter on July 9 to Colonel Clarke (M.P. for East Grinstead), had declared that the discussion had strayed far beyond the bounds of the World Health Organization's proper functions. The Minister added, however, that the Ministry considered it was within the province of the Organization to give assistance as a technical consultant, as it had done when the Government of India asked for technical help in regard to a pilot experiment in the "rhythm method" of birth control. Mr. Houghton asked what was the Government's policy.

Mr. WALTER EDWARDS strongly opposed any move by the Government to support the principle of birth control by interference in India and other places. Britain had been able to do it properly by education.

Miss P. HORNSBY-SMITH said there had been no change in the policy of the Government on this topic in regard to the World Health Organization. From the outset it had been the policy of the World Health Assembly and of the World Health Organization that birth control was primarily a sociological and not a medical question. The Organization

was doing an enormous amount of good in fighting disease throughout the world. If a matter as violently controversial as this topic were brought into this Organization it would have meant the secession of several nations. For W.H.O. to set up an expert committee which would only have a limited time to conduct its surveys before the proposed population conference in 1954 would have meant that the job was half done or that the committee could not report in time for the conference. Delegates reported great acrimony and tremendous opposition at Geneva, and a realization all round that the World Health Organization was too big to be split on this topic. Miss Hornsby-Smith recalled that under Part II of the National Health Service Act the gynaecological department of a hospital could be used to provide advice on contraception where the avoidance of pregnancy was considered necessary on medical grounds. Under Part III of the Act married women attending local health authority clinics as expectant or nursing mothers might be given birth control advice if the doctor in charge of the clinic thought a further pregnancy should be avoided on medical grounds. The Government did not believe it was part of the duty of the World Health Organization to impose on economic grounds a policy which was the concern of individual sovereign governments. The United Kingdom representative did not enter into the discussion at Geneva because he felt it ranged far beyond what should be introduced in W.H.O. Dr. Mackenzie did well to let the warring factions continue their discussion, but to maintain British neutrality. The Government had an open mind in regard to practice in territories over which it had no jurisdiction, but set itself against imposing anything of this nature on any territory under United Kingdom control.

Parkinson's Disease

Mr. EDWARD DAVIES opened on July 17 a discussion on Parkinson's disease. He said cases from North Staffordshire had come to notice in which working-men had subscribed money to enable colleagues to go to Germany to a clinic in Kassel, the Elena Klinik, which was well known. He recalled that on December 4 last Miss Hornsby-Smith had said that the Ministry of Health had caused the work of the Elena Klinik to be investigated by two consultant neurologists. Both reported that the treatment consisted primarily of excellently planned rehabilitation and physical re-education, together with administration of drugs of the belladonna group. There was no question of cure. The Ministry's advisers held that there were good rehabilitation centres in this country, and that drugs that were used in Kassel were being superseded by more effective remedies.

Dr. BARNET STROSS said the country needed more physiotherapists with a special slant in their training so that they would be able to deal with these patients. The profession knew of the valuable work done in Canterbury under two medical men who ran a group clinic. There was no reason why every management committee running a group of hospitals should not use their facilities, premises, and staff so that patients need not move from that area to have the type of treatment which would do them good.

Miss P. HORNSBY-SMITH said "artane," "lysivane," "benadryl," and "parpanit" were fully available in all hospitals where patients came for treatment. The Ministry after full investigation was convinced that there was no scientific evidence that diet had any influence on the disease. The greatest field of hope and development was physiotherapy. Various surgical operations had been suggested, mostly to deal with the tremor resulting from the disease. All had been discredited, save one which proved of some value in rare cases where the tremor was only on one side of the body. The Koningen Elena Klinik at Kassel undertook extensive re-education and encouragement, combined with the old-fashioned belladonna treatment and a peculiar and, as the Ministry believed, unnecessarily built-up diet. Great claims had been made for surgical operations conducted by Dr. Klemme in Minneapolis, where certain brain operations were performed. These operations had been absolutely discredited both in the United States and in this country.

Civil Defence

Civil defence was discussed on July 18. Dr. BARNET STROSS said the country needed 500,000 people to be specifically trained in civil defence. The four things the nation must guard against were high explosives, fire bombs, atom bombs, and disease attacks. He thought disease attacks would not be used. General Alden H. Watt, chief of the United States Army Chemical Corps, had said that one ounce of *Clostridium botulinum*, under ideal conditions, could probably kill 150,000,000 people. Such statements did not mean much, because those conditions did not obtain. In his view as a medical man treatment of burns was the essential problem of civil defence. He asked the Home Secretary to what extent blood plasma and blood were being stockpiled, what steps were being taken to increase the skilled medical personnel plus ancillary services for skin-grafting and plastic surgery, and whether there was a sufficient supply of antibiotics and of dressings.

Sir DAVID MAXWELL FYFE said he would see that the suggestions underlying the questions of Dr. Stross were carefully studied. Persons who had enrolled in civil defence services numbered 263,458, including 25,000 in the National Hospital Reserve.

Intern Year

Mr. IAIN MACLEOD told Mrs. Hill on July 17 that he was informing hospital authorities that the General Medical Council had prescribed an intern year following the passing of a qualifying examination before a person could be registered under the Medical Acts, and that the necessary draft Order would be laid before Parliament. The new provision would come into operation on January 1, 1953, and the necessary formal draft Order of Council had been submitted for the approval of the Privy Council.

Universities and Colleges

UNIVERSITY OF EDINBURGH

At a graduation ceremonial on July 3 the honorary degree of LL.D. was conferred on Sir Gordon Morgan Holmes, F.R.S., consulting physician to the National Hospital for Nervous Diseases, London.

At a graduation ceremonial on July 16 the following degrees and diplomas were conferred:

M.D.—[2]Marion B. Bethune, [1]J. C. Cruickshank, [1 4]J. W. A. Duckworth, R. A. K. Harper, Runa B. Mackay, [2]A. R. Muir, T. R. N. Parhar, C. H. M. Walker.

PH.D.—*In the Faculty of Medicine:* B. Cruickshank, [4]Z. Godlowski, R. H. Girdwood, A. S. Paintal, Lilli Stein.

M.B., CH.B.—D. H. Adamson, J. C. Aickin, J. A. Aitken, N. C. Allan, H. C. Allen, Anne J. Anderson, A. Armstrong, E. F. Auden, T. Awuku-Asabre, W. McA. Ayles, J. A. MacD. Bain, A. Banks, F. M. Begg, W. D. Bennett, A. J. Berry, H. S. P. Binnie, Sheila H. Birse, G. C. Biss, A. Bisset, A. Black, J. G. Blyth, Heather Bremner, Alison G. H. Brown, Jean F. Brown, D. Budge, D. Cadger, Helen M. Caldwell, H. A. Campbell, D. I. B. Carrie, T. M. Chalmers, D. G. Chambers, Agnes Clark, H. G. Clarke, A. Craig, Margaret Cramb, F. McD. R. Cranston, G. A. G. Crease, [3]S. H. Davies, K. J. Dennis, Margaret McC. Dewar, Agnes M. Dickson, A. Doig, P. H. Dootson, Betty Duncan, J. K. Edwards, W. A. Elliott, E. T. Faunch, W. Ferguson, J. A. D. Gillies, Joyce Y. Graham, R. W. Graham, M. J. Grayson, W. M. Haining, Daphne V. M. Halliday, W. Harrison, Pamela P. Hartley, G. I. Hendry, Rena E. Hogg, J. Hood, Margaret Hope, Agnes C. Howie, Constance C. M. Howie, G. A. Ives, T. P. C. Jameson, V. W. Johnson, S. M. Joubert, Lilias Kilpatrick, Christine C. G. Krause, Mairi H. Lack, J. P. Laidlaw, R. B. Laidlaw, Ann L. Langley, A. W. B. Lawson, W. J. H. Leckie, P. B. Lesslie, C. D. Livingstone, Margaret A. Loraine, I. A. Lowe, G. B. McAulay, H. F. MacConnachie, A. McDonald, H. J. McDonald, H. Macdonald, Isobel Macdonald, Jean M. Macdonald, R. Macdonald, G. P. McGovern, D. P. McGowran, D. MacGregor, Kathleen L. MacGregor, G. M. McLaren, J. Macleod, M. Macleod, Inez M. McMurray, J. McNae, I. S. McRobbie, R. G. Mahaffy, J. M. Main, J. E. Malcolm, C. M. Manson, T. W. Manson, F. P. S. Marriott, J. A. K. Meikle, K. T. W. Miller, W. H. Morgan, J. K. Morrison, N. McQ.

Munnoch, Dorothy Murphy, P. J. B. Murray, G. J. M. Nairn, W. J. Newlands, Paulette O'Dowda, J. N. Park, Morag Parnell (née MacQuarrie), R. A. Parry, A. B. Partridge, Margaret D. Paton, R. W. F. Paul, W. F. Paveley, W. Peter, R. C. Phellas, D. E. B. Powell, H. W. S. Rankin, Jean McK. Reid, Kathleen M. Robb, M. K. Robinson, A. I. Ross, I. A. B. M. Ross, T. A. Sanderson, P. D. Sears, Marjorie E. J. Shafto, Doreen W. Shennan, J. P. Shutt, B. C. S. Slater, W. D. Smith, A. K. M. Stewart, F. L. Sturrock, J. H. Tait, D. E. M. Taylor, J. A. Taylor, I. M. Thom, C. H. Thomson, E. D. M. Tod, I. C. K. Tough, G. H. Wallace, G. S. Wallace, A. Watt, G. O. Way, D. B. Williamson, J. B. Williamson, A. O. A. Wilson, J. Wilson, H. W. Wright.

D.P.H.—E. C. B. Bramwell, Isobel B. Craighead, J. Drummond, R. R. Gillies, R. S. Hardie, Margaret G. Martin, Elizabeth C. Nelson, J. H. Nicolson, R. Park, D. K. Ramadwar, S. Rehman, W. Serle, C. W. Shearer, C. E. G. Wickham, I. M. Wood, H. W. Woolner, E. W. Wright.

D.T.M.&H.—A. M. I. El Haddad, D. M. Cameron, D. G. Conacher, A. Z. S. Hanno, W. K. Lutterodt, Y. Marzouk, H. B. Singh, C. H. Sivaraman.

DIPLOMA IN PSYCHIATRY.—Beatrice M. Allen, D. Satya Nand.

The following scholarships, bursaries, prizes, etc., were awarded in the Faculty of Medicine: *Cameron Prize in Practical Therapeutics*, K. P. Link, Ph.D., professor of biochemistry in the University of Wisconsin, in recognition of his work on anticoagulant therapy. *Ettles Scholarship and Leslie Medal, Buchanan Scholarship in Obstetrics and Gynaecology, Mouat Scholarship in the Practice of Physic, Beaney Prize in Anatomy and Surgery*, and *Royal Victoria Hospital Tuberculosis Trust Medal*, S. H. Davies. *Scottish Association for Medical Education of Women Prize* and *Dorothy Gilfillan Memorial Prize*, Alison G. H. Brown. *Stark Scholarship in Clinical Medicine* and *Murdoch Brown Medal in Clinical Medicine*, J. P. Laidlaw. *James Scott Scholarship in Obstetrics and Gynaecology*, J. K. Morrison. *Gunning Victoria Jubilee Prize in Anatomy*, A. R. Muir. *Lawson Gifford Prize in Obstetrics and Gynaecology* and *Keith Memorial Prize in Systematic Surgery*, D. E. M. Taylor. *Conan Doyle Prize*, S. M. Joubert. *Wightman Prize in Clinical Medicine*, Marjorie E. J. Shafto. *Annandale Medal in Clinical Surgery*, Pamela P. Hartley. *Colonel Thomas Biggam Memorial Medal and Prize in Pathology*, J. Syme. *George Guthrie Research Fellowship in Child Health*, T. T. S. Ingram. *Freeland Barbour Fellowship* and *Crichton Research Scholarship*, Rachel B. Mackay. *Ethicon Research Fellowship*, S. R. Mukherjee. *Whaitt Research Scholarship*, H. B. Torrance. *Paterson Travelling Scholarship in Surgery*, H. A. F. Dudley. *Wilkie Surgical Research Scholarship*, E. J. Delorme. *Wellcome Medal and Prize in the History of Medicine*, G. D. Forwell. *Ellis Prize in Physiology*, K. Krnjevitch. *Stirton Bursary*, W. C. Constable. *Gunning Medical Bursaries*, J. C. J. Ll. Bath, E. W. Horton, A. O. Langlands. *George William Falconer Macnaughton Bursaries in Physiology*, A. O. Langlands, G. R. Sutherland. *Senior John Aitken Carlyle Bursary in Anatomy and Physiology*, A. O. Langlands. *Junior John Aitken Carlyle Bursary in Anatomy and Biochemistry*, I. B. Macleod. *Mackenzie Bursaries in Anatomy*, I. B. Macleod, J. A. Waddell, and G. O. D. Busby and D. Leak (equal), and D. R. Millar and Aline M. Watson (equal). *Whiteside Bruce Bursary* and *Vans Dunlop Prize in Physics and Chemistry*, G. M. Morley. *Maclagan Prize in Forensic Medicine*, C. R. Johnson. *Lewis Cameron Undergraduate Prize in Bacteriology*, E. W. Horton. *Cunningham Memorial Medal and Prize in Anatomy*, G. R. Sutherland. *Ian Oswald Prizes in Anatomy*, J. S. Munro and D. Dow and A. O. Langlands (equal). *Robert Wilson Memorial Prize in Chemistry*, J. K. Phillips. *Vans Dunlop Prize in Botany and Zoology*, M. A. Houseley. *MacGillivray Prize in Zoology*, Ella I. Fleming.

[1]Awarded medal for thesis. [2]Highly commended for thesis. [3]With honours. [4]*In absentia*.

UNIVERSITY OF LEEDS

Mr. Percival John Moir, consulting surgeon to the United Leeds Hospitals and to the Leeds Regional Hospital Board, has been elected Dean of the Faculty of Medicine for 1952–3, in succession to Professor J. W. McLeod, F.R.S., who is retiring. Mr. Moir was professor of surgery in the University from 1940 to 1946.

Dr. Winifred M. Burbury has been appointed Senior Lecturer in Child Psychiatry.

QUEEN'S UNIVERSITY, BELFAST

On July 9 the honorary degree of LL.D. was conferred on Sir Ernest Rock Carling, consultant surgeon to Westminster Hospital and consultant adviser in surgery to the Ministry of Health.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College held on July 10 Sir Cecil Wakeley was re-elected President for the ensuing year and Sir James Paterson Ross and Sir Reginald Watson-Jones were elected Vice-Presidents.

Sir Clement Price Thomas, Mr. C. Naunton Morgan, Mr. Hedley Atkins, and Mr. Myles Formby were admitted as Members of the Council. The following were co-opted to the Council for the year 1952–3: Dr. O. C. Carter, of Bournemouth (representing general practice), and Dr. Bernard Johnson, Dean of the Faculty of Anaesthetists (representing anaesthetics).

Mr. F. McGuckin, F.R.C.S.Ed., was admitted to the Fellowship *ad eundem*. Mr. A. J. Boase was admitted to the Fellowship as a Member of 20 years' standing.

Professor Gilbert Causey was admitted as the Sir William Collins Professor of Human and Comparative Anatomy.

Professors and Lecturers for the ensuing year were appointed as follows: *Hunterian Professors:* Professor N. Makar Bey, one lecture on pathogenesis of cancer in the bilharzial bladder; Mr. T. E. Cawthorne, one lecture on the surgery of the temporal bone; Mr. W. Hynes, one lecture on the results of pharyngoplasty by muscle transplantation in "failed cleft palate" cases, with special reference to the influence of the pharynx on voice production; Mr. R. F. Phillips, one lecture on neuroblastoma; Mr. K. W. Starr, one lecture on acute post-operative dilatation of the stomach; Mr. E. R. Smith, one lecture on pancreatic neoplasms; Mr. J. E. Richardson, one lecture on the early renal symptoms of parathyroid tumour; Mr. J. Moroney, one lecture on colonic replacement and restoration of the human stomach; Dr. J. B. Wyman, one lecture on the use of pentamethonium and hexamethonium salts in major surgery; Mr. D. MacG. Jackson, one lecture on the treatment of burns—an exercise in emergency surgery; Mr. G. K. Tutton, one lecture on cerebral abscess—the present position; Mr. H. H. G. Eastcott, one lecture on arterial grafting for the ischaemic lower limb; Mr. S. S. Rose, one lecture on a clinical and radiological survey of 150 cases of recurrent swellings of the salivary glands; Mr. F. A. Henley, one lecture on gastrectomy with replacement.

Arris and Gale Lectures.—Mr. C. J. Longland, one lecture on collateral arterial circulation in the limb; Dr. A. A. G. Lewis, one lecture on the control of the excretion of water by the human kidney; Mr. H. F. Lunn, one lecture on high ligation of the neck of the sac in inguinal hernia; Mr. L. P. Le Quesne, one lecture on the management of water and electrolyte administration during the post-operative period.

Erasmus Wilson Demonstrators.—Mr. P. H. Mitchiner, one demonstration; Dr. L. W. Proger, one demonstration; Dr. R. M. Haines, one demonstration on tumours of the uterus.

Arnott Demonstrators.—Mr. P. H. Mitchiner, one demonstration; Professor L. C. Rogers, one demonstration; Dr. F. Stansfield, two demonstrations; Mr. R. J. Last, two demonstrations.

Surgeon Commander F. P. Ellis, R.N., and Mr. P. W. Brand were awarded Hunterian Lectureships.

The twenty-first Macloghlin Scholarship was awarded to Brian Greenwood, of Halifax.

Dr. D. R. Lucas was appointed research pathologist to the Ophthalmological Research Unit.

It was decided to award two Begley prizes and two Handcock prizes each year on the result of the final examination in surgery for the Membership of the College.

Diplomas were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—A. G. Ackerley, E. C. Atkinson, S. C. Banerji, J. S. Brown, B. W. M. Bushell, P. P. Clifford, F. Fleming, A. W. Halfhide, S. Itchhaporia, H. B. Juby, K. B. Khambatta, E. H. Ross, G. E. Rousseaux, P. R. McH. Scales, R. H. P. Sinha, T. C. Taylor, P. H. Wood.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—J. S. Dawson, A. Folkson, D. Glendinning, Nest Kahan, G. A. Levinson, G. S. Mansell, H. Rosenberg.

DIPLOMA IN ANAESTHETICS.—R. J. H. Hodges.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—H. P. M. Perera, R. T. Scholes.

ROYAL COLLEGE OF SURGEONS IN IRELAND

On July 11 the Honorary Fellowship of the College was conferred on Sir Geoffrey Jefferson, F.R.S., Professor of Neurosurgery in the University of Manchester and Director of the neurological laboratories of the University's department of neurosurgery at Manchester Royal Infirmary, and Consultant Adviser in Neurosurgery to the Ministry of Health and Ministry of Pensions.

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending July 5 (No. 27) and corresponding week 1951.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the 160 great towns in England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES in Countries and London	1952					1951				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	30	4	8	2	1	22	3	11	0	0
Dysentery	180	51	51	3	2	368	79	84	6	
Encephalitis, acute	5	0	1	1		8	0	0	0	
Enteric fever:										
Typhoid	2	1	1	1	2	7	0	1	1	2
Paratyphoid	21	1	3(B)	0		23	5	0	1	
Food-poisoning	168	8		2		109	17		3	
Infective enteritis or diarrhoea under 2 years				8	22				15	33
Measles*	6,720	605	141	221	293	8,544	226	203	230	155
Meningococcal infection	23	0	16	1	1	39	4	17	3	
Ophthalmia neonatorum	38	8	14	0		40	4	6	0	
Pneumonia†	314	15	143	7	1	358	8	141	4	5
Poliomyelitis, acute:										
Paralytic	61	5	5	5		40	0	16	2	1
Non-paralytic	25	3				60	4			
Puerperal fever§	234	37	10	3		73	5	10	1	1
Scarlet fever	1,036	92	201	4	49	816	82	130	17	49
Tuberculosis:										
Respiratory			127	33				134	37	
Non-respiratory			24	12				22	10	
Whooping-cough	2,344	104	130	73	98	3,358	205	276	59	74

DEATHS in Great Towns	1952					1951				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	0	0		0	0	0	0	0	0	0
Dysentery	1	0		0			1		0	
Encephalitis, acute		0			1		0			0
Enteric fever	0	0		0		0	0	0	0	
Infective enteritis or diarrhoea under 2 years	11		2	2	1	11		2	0	1
Influenza	3	0		0	0	2	0	0	0	0
Measles		0	1	0	0		0	0	1	1
Meningococcal infection		0					0	1		
Pneumonia	118	24		9	8	111	16		1	1
Poliomyelitis, acute	0	0			0	2	0			0
Scarlet fever		0		0	0		0	0	0	0
Tuberculosis:										
Respiratory	93	13	6	2	7	110	13	21	6	6
Non-respiratory		4	3	1	6		2	5	2	3
Whooping-cough	4	0		0	0	4	0	0	0	0
Deaths 0–1 year	219	30	30	10	12	179	29	26	12	16
Deaths (excluding stillbirths)	4,610	683	552	108	153	4,210	690	491	101	162
LIVE BIRTHS	7,661	1140	900	224	401	7,200	1249	927	230	533
STILLBIRTHS	181	24	16			153	18	22		

* Measles not notifiable in Scotland, when returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Vital Statistics

Poliomyelitis

Total notifications for 1952, up to and including the week ending July 12, were 1,013. This compares with figures in the corresponding period for the preceding five years as follows: 1947, 612; 1948, 746; 1949, 748; 1950, 1,659; 1951, 1,027.

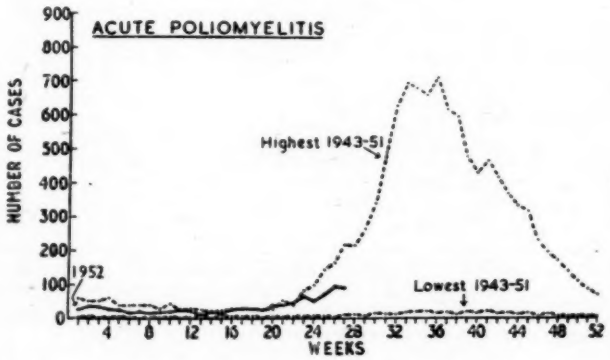
As to geographical distribution since the week ending May 31 inclusive, there has been a total of 108 notifications from Co. Durham, a considerably higher figure than elsewhere.

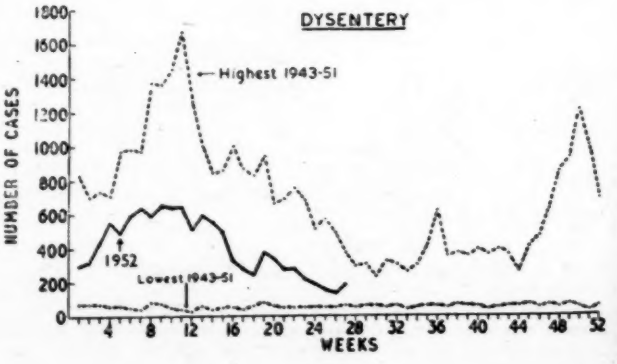
We are indebted to Dr. James Grant, M.O.H. for Gateshead, for the following information: Poliomyelitis has been prevalent on Tyneside, particularly on the south bank of the river, since May 3, the date of onset of the first case. Up to July 19, 93 cases of poliomyelitis had been confirmed, 62 in Gateshead C.B., 21 in Felling U.D., 9 in Whickham U.D., and 1 in Hebburn U.D. North of the Tyne there has been a very slight prevalence.

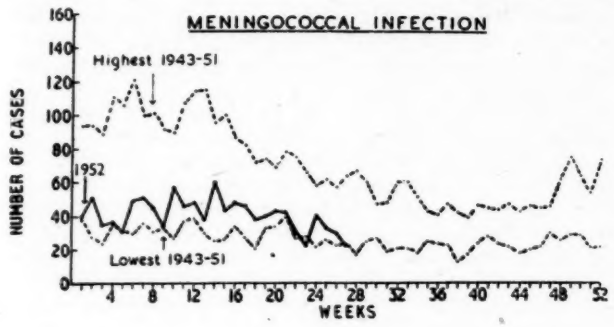
The age distribution of the South Tyneside cases is that of classical infantile paralysis, 64 being under the age of 5 years, 20 aged 5 to 9, 2 aged 10 to 14, and 7 being adults. 44 cases have shown paralysis, and there were 2 deaths, one a child of 3 years who died of ascending respiratory paralysis, and one an adult of 30 years who died of bulbar paralysis. Paralysis involved the limbs only in 23 cases, the cranial nerves in 11 cases, the limbs and cranial nerves in 3 cases, and the limbs and respiratory muscles in 7 cases.

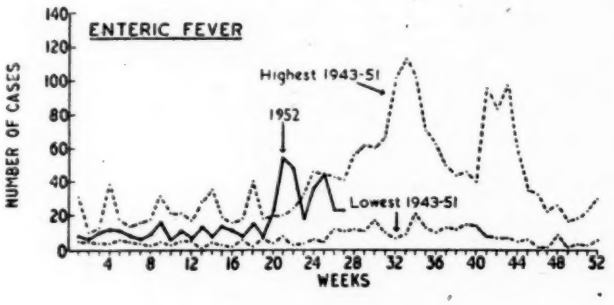
Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported during the nine years 1943–51 are shown thus -------, the figures for 1952 thus ————. Except for the curves showing notifications in 1952, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.









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Week Ending July 12

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Professor Dodds, in a few words of acknowledgment, said how fortunate he had always been in his research work in being able to fall back on the generous support of his hospital and medical school (Middlesex) and the Medical Research Council. But to-day he felt that the path of the man doing research was easier than in years gone by. More money was available for research; the University Grants Committee was able to help, and there was the encouragement of foundations such as those bearing the names of Nuffield and of Wellcome, as well as large commercial firms. Moreover, the National Research Development Corporation was now performing a most valuable function in relation to medical and scientific discovery and invention. Dr. Shinnie spoke of the indebtedness of all concerned in the public health field to the late Sir William Robert Smith and to the Institute he founded, especially for encouraging international conferences in public health at a time when internationalism was less familiar than now. He mentioned also his good fortune in having been closely associated through his local authority with Westminster Hospital and its School.

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International Congress of Physical Medicine.—At the conclusion of the first International Congress of Physical Medicine, held in London last week, a banquet was given to the delegates and their wives in the Dorchester Hotel on July 18. Lord Horder presided. Proposing the toast

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending July 5 (No. 27) and corresponding week 1951.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the 160 great towns in England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES in Countries and London	1952					1951				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	30	4	8	2	1	22	3	11	0	0
Dysentery	180	51	51	3	2	368	79	84	6	
Encephalitis, acute	5	0	1	1		8	0	0	0	
Enteric fever: Typhoid	2	1	1	1	2	7	0	1	1	2
Paratyphoid	21	1	3(B)	0		23	5	0	1	
Food-poisoning	168	8		2		109	17		3	
Infective enteritis or diarrhoea under 2 years				8	22				15	33
Measles*	6,720	605	141	221	293	8,544	226	203	230	155
Meningococcal infection	23	0	16	1	1	39	4	17	3	
Ophthalmia neonatorum	38	8	14	0		40	4	6	0	
Pneumonia†	314	15	143	7	1	358	8	141	4	5
Poliomyelitis, acute: Paralytic	61	5	5	5		40	0	16	2	1
Non-paralytic	25	3				60	4			
Puerperal fever§	234	37	10	3		73	5	10	1	1
Scarlet fever	1,036	92	201	4	49	816	82	130	17	49
Tuberculosis: Respiratory			127	33				134	37	
Non-respiratory			24	12				22	10	
Whooping-cough	2,344	104	130	73	98	3,358	205	276	59	74

DEATHS in Great Towns	1952					1951				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	0	0		0	0	0	0	0	0	0
Dysentery	1	0		0			1		0	
Encephalitis, acute		0			1		0			0
Enteric fever	0	0		0		0	0	0	0	
Infective enteritis or diarrhoea under 2 years	11		2	2	1	11		2	0	1
Influenza	3	0		0	0	2	0	0	0	0
Measles		0	1	0	0		0	0	1	1
Meningococcal infection		0					0	1		
Pneumonia	118	24		9	8	111	16		1	1
Poliomyelitis, acute	0	0			0	2	0			0
Scarlet fever		0		0	0		0	0	0	0
Tuberculosis: Respiratory	93	13	6	2	7	110	13	21	6	6
Non-respiratory		4	3	1	6		2	5	2	3
Whooping-cough	4	0		0	0	4	0	0	0	0
Deaths 0–1 year	219	30	30	10	12	179	29	26	12	16
Deaths (excluding stillbirths)	4,610	683	552	108	153	4,210	690	491	101	162
LIVE BIRTHS	7,661	1140	900	224	401	7,200	1249	927	230	533
STILLBIRTHS	181	24	16			153	18	22		

* Measles not notifiable in Scotland, when returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Vital Statistics

Poliomyelitis

Total notifications for 1952, up to and including the week ending July 12, were 1,013. This compares with figures in the corresponding period for the preceding five years as follows: 1947, 612; 1948, 746; 1949, 748; 1950, 1,659; 1951, 1,027.

As to geographical distribution since the week ending May 31 inclusive, there has been a total of 108 notifications from Co. Durham, a considerably higher figure than elsewhere.

We are indebted to Dr. James Grant, M.O.H. for Gateshead, for the following information: Poliomyelitis has been prevalent on Tyneside, particularly on the south bank of the river, since May 3, the date of onset of the first case. Up to July 19, 93 cases of poliomyelitis had been confirmed, 62 in Gateshead C.B., 21 in Felling U.D., 9 in Whickham U.D., and 1 in Hebburn U.D. North of the Tyne there has been a very slight prevalence.

The age distribution of the South Tyneside cases is that of classical infantile paralysis, 64 being under the age of 5 years, 20 aged 5 to 9, 2 aged 10 to 14, and 7 being adults. 44 cases have shown paralysis, and there were 2 deaths, one a child of 3 years who died of ascending respiratory paralysis, and one an adult of 30 years who died of bulbar paralysis. Paralysis involved the limbs only in 23 cases, the cranial nerves in 11 cases, the limbs and cranial nerves in 3 cases, and the limbs and respiratory muscles in 7 cases.

Graphs of Infectious Diseases

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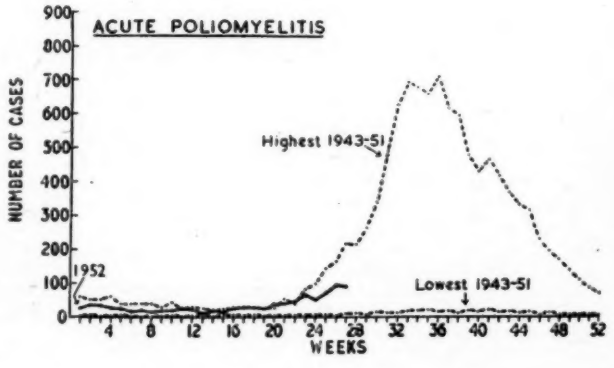

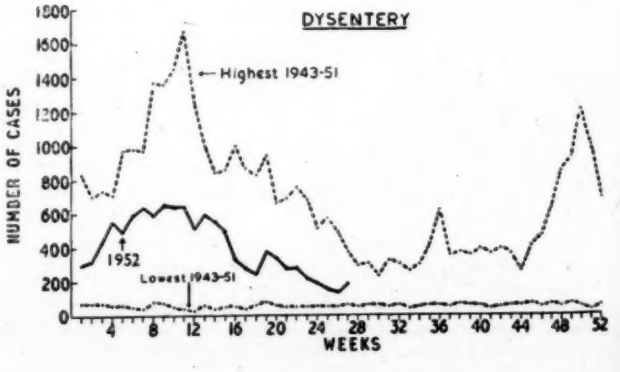

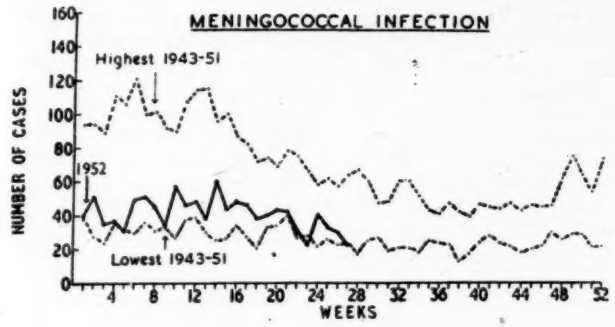

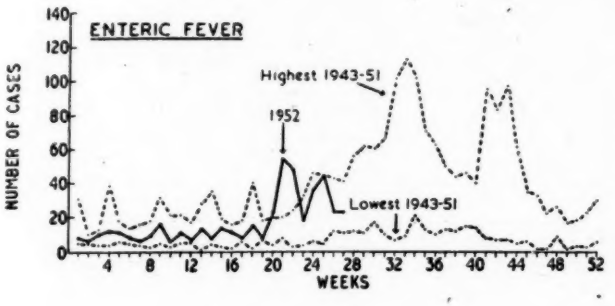

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to the Congress and the International Federation of Physical Medicine, Sir Lionel Whitby said that physical medicine had passed into a dynamic and active phase, affecting the activities of both body and mind. It had been said that either a man's disability conquered him or he conquered it: physical medicine taught men to conquer their disabilities. After speaking of the valuable work of Dr. S. Clemmesen, of Copenhagen, and Dr. F. H. Krusen, of the Mayo Clinic, Sir Lionel ended with a warm tribute to Lord Horder. In reply Lord Horder said that physical medicine had made good: "We've been on probation for some time," he added. In the last decade there had been no more successful approach to the problems of the individual patient than that made by physical medicine. Lord Horder told some excellent stories, and Professor K. M. Walthard delighted the company by translating them immediately into French. Proposing the health of the guests, Dr. Frank Krusen, president of the International Federation of Physical Medicine, thanked the British Association of Physical Medicine for the superb arrangements made for the congress. The physical sciences, he said, had grown so rapidly that they had outstripped the social sciences. The task was now to bring social engineering to the same efficiency as electrical engineering. Sir Russell Brain, replying to this toast, said that with physical medicine the strength of potential for action was both stratospheric and hypersonic. In the development of any specialty it should be remembered that specialism was not so much a separate part of medicine, but the whole of medicine seen from a particular point of view: each part was closely related to all other parts. In Sir Russell's opinion physical medicine had reached a stage of great interest and importance. Lord Horder then called on Dr. Van Breemen, of the Netherlands, and Professor G. Bourguignon, of France, to say a few words, and both made brief speeches.

M.R.C. Travelling Fellowships.—The Medical Research Council announces that it has made the following travelling awards for the academic year 1952–3 :

Rockefeller Travelling Fellowships in Medicine: Dr. M. de Burgh Daly, lecturer in physiology, University College, London; Dr. J. E. Hotchin, member of scientific staff, National Institute for Medical Research, London; Dr. E. L. McDonald, assistant to professor of medicine, Middlesex Hospital, London; Dr. R. G. Mitchell, lecturer in child health, University of St. Andrews, Dundee; Dr. N. B. Myant, member of scientific staff, department of clinical research, University College Hospital Medical School, London; Dr. P. C. Reynell, graduate assistant, Nuffield Department of Clinical Medicine, Radcliffe Infirmary, Oxford.

Eli Lilly Travelling Fellowships in Medicine: Dr. C. J. Earl, junior lecturer, department of chemical pathology, Guy's Hospital Medical School, London; Mr. P. H. Schurr, senior registrar in neurosurgery, Radcliffe Infirmary, Oxford; Dr. R. G. White, Freedom Research Fellow, London Hospital; Dr. G. M. Wilson, senior lecturer in therapeutics, University of Sheffield, and assistant physician, Sheffield Royal Infirmary.

Dorothy Temple Cross Research Travelling Fellowships in Tuberculosis: Dr. C. N. Iland, lecturer in bacteriology, University of Bristol; Mr. H. Platt, University Research Fellow in veterinary pathology, department of pathology, University of Liverpool.

Alexander Pigott Wernher Memorial Travelling Fellowships in Otology: Dr. D. R. Haynes, department of otolaryngology, Johannesburg General Hospital; Dr. R. F. Naunton, member of scientific staff, Wernher Research Unit on Deafness, Institute of Laryngology and Otology, Royal National Throat, Nose and Ear Hospital, London.

French Exchange Scholarships in Medical Science (in association with the Centre National de la Recherche Scientifique): Dr. J. D. Carr, British Empire Cancer Campaign grantee, Poultry Research Centre, Edinburgh; Dr. M. A. Epstein, assistant pathologist (research), Bland-Sutton Institute, Middlesex Hospital, London.

Cancer Research.—The Imperial Cancer Research Fund celebrated its 50th birthday with a party at the Fund's laboratories on July 15. The Fund was founded in 1902 under the direction of the Royal Colleges of Physicians and Surgeons. Last week it made its birthday an intellectual occasion by arranging exhibits and demonstrations so that the visitors should have some idea of the nature and the range of the work of the Fund. In the birthday programme it is stated that the work of the Fund from 1902 to 1912 on the transplantation of mouse tumours and the comparative histology of cancer, along with other work, showed that "cancer cells were derived from normal body cells and grew out of their own resources in the absence of a continuously acting provocative agent." Another exhibit demonstrated the sarcomatous transformation of the stroma of a transplantable mouse carcinoma, observed in 1907. The following were the demonstrations: diphasic tumours and ascites tumours; ascites tumour cells in tissue culture; preservation of tumours in the frozen state; the role of *p*-aminobenzoic acid in the induction of liver tumours; some of the trials of hormone assay; routine investigation of human breast cancer; the cytology of the human vagina and of breast cancer; and prostatic carcinoma.

Society of Physicians in Wales.—The Society, which was founded a year ago, held its third meeting at Swansea on June 27 and 28, under the chairmanship of Dr. Esmond Rees. The following papers were read: Professor Harold Scarbrough, "Capillary resistance, trauma, and cortisone"; Dr. J. M. Swithenbank, "Intrathecal adjuvants in the streptomycin therapy of tuberculous meningitis"; Dr. Leonard Howells, "Some observations on nitrogen mustard therapy"; Dr. Philip Evans, "The effect on the clotting time of various heparin preparations"; Dr. J. D. Spillane, "Diabetes insipidus and pulmonary disease"; Dr. F. L. Dyson, "Pigmentation of the lips and buccal mucous membrane associated with intestinal polyposis." It is proposed to hold the next meeting in North Wales on June 26 and 27, 1953.

Lancet Indexes.—The Scottish Office of the B.M.A. would be grateful to have the following indexes to the *Lancet*: Vols. 1 and 2 for 1948, 1949, and 1950, and Vol. 1 for 1951. They should be sent to the Scottish Secretary, Dr. E. R. C. Walker, British Medical Association, 7, Drumsheugh Gardens, Edinburgh, 3.

Sir James Learmonth, professor of surgery and regius professor of clinical surgery at Edinburgh University, has been elected a *correspondant étranger* of the Académie de Médecine, Paris.

Queen's Prize at Bisley.—Dr. A. B. Kinnier Wilson, a neurologist and former R.A.M.C. specialist, won the Queen's Prize for rifle-shooting at Bisley on July 19.

NEW ISSUES

British Journal of Industrial Medicine.—The next issue of this journal (Vol. 9, No. 3) will be available in a week's time. The principal contents include:

THE EFFECT OF CORTISONE ON EXPERIMENTAL SILICOSIS. C. V. Harrison, E. J. King, J. C. Dale, and R. Sichel.
THE PHAGOCYTOSIS OF INDUSTRIAL DUSTS IN TISSUE CULTURES. Karl Wilhelm Jötten and Christian van Marwyck.
THE CAUSES OF DEATH AMONG GAS-WORKERS WITH SPECIAL REFERENCE TO CANCER OF THE LUNG. Richard Doll.
COTTON DUST IN RELATION TO BYSSINOSIS. PART II: SKIN TESTS FOR ALLERGY WITH EXTRACTS OF COTTON DUST. H. R. Cayton, G. Furness, and H. B. Maitland.
RHEUMATISM IN MINERS. PART II: *X*-RAY STUDY. J. H. Kellgren and J. S. Lawrence.
HISTORY OF LUNG DISEASES OF COAL MINERS IN GREAT BRITAIN. PART III: 1920–1952. Andrew Meiklejohn.
THE EFFECT OF PSYCHOLOGICAL HANDICAP IN TWO FACTORY GROUPS. Morris Markowe and L. E. D. Barber.
ACUTE PHENOL POISONING. S. Jenkin Evans.

Issued quarterly; annual subscription £2 2s., single copy 12s. 6d.; obtainable from Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

COMING EVENTS

Biology as a Career.—The Institute of Biology is arranging a one-day discussion in Birmingham on October 4. Speakers will include Sir Harold Himsworth on careers in medical research, Professor J. F. Danielli on biology in universities, G. A. C. Herklots (secretary for colonial agricultural research at the Colonial Office) on careers in the Colonies, and Sir William Slater on opportunities in agricultural research. Full details of the conference may be obtained from the general secretary of the Institute, Tavistock House South, Tavistock Square, London, W.C.1.

National Safety Congress.—The public safety sessions of the 1952 congress will be held in Central Hall, Westminster, S.W.1, on October 7, 8, and 9, organized by the Royal Society for the Prevention of Accidents. The comprehensive fee covering all sessions of the congress is £3 13s. 6d. for registered members and £4 14s. 6d. for non-members. Part-time attendance per session will cost £1 5s. and £1 10s. respectively. The programme includes discussion of trends in road safety, and road safety and the vehicle. Full details and application forms from the secretary of the Society, Terminal House, 52, Grosvenor Gardens, London, S.W.1.

Middlesex Hospital Medical School.—The annual dinner of the school will be held at Savoy Hotel (Victoria Embankment entrance), London, on Friday, October 3, at 7 for 7.30 p.m.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Thursday, July 31

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—5 p.m., three-dimensional surgical film in colour: *"Radical Resection for Carcinoma of the Stomach."*

Tuesday, July 29

OXFORD UNIVERSITY.—At Sir William Dunn School of Pathology, 2.30 p.m., *"The Isolation of the Tubercle Bacillary Protein Fraction and its Ability to Sensitize Cells,"* by Dr. Florence B. Seibert (University of Pennsylvania).

APPOINTMENTS

WELSH REGIONAL HOSPITAL BOARD.—*Consultant Physician, Newport and East Monmouth and North Monmouth Hospital,* Aneurin Hughes, M.B., B.S., M.R.C.P.Ed. *Assistant Psychiatrist (S.H.M.O.), Morgannwg Hospital,* H. Dale Beckett, M.R.C.S., L.R.C.P. *Consultant Pathologist, Cardiff Hospital,* B. J. Stephens, M.D. *Consultant Pathologist, Wrexham, Powys and Mawddach Hospital,* L. Wise, M.B., Ch.B. *Consultant Radiologist, Rhymney and Sirhowy Valleys Hospital,* Gwenllian B. Davies, M.R.C.S., L.R.C.P., D.M.R. *Consultant Psychiatrist, Penyval Hospital,* I. M. Davies, M.R.C.S., L.R.C.P., D.P.M.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Caldwell.—On June 24, 1952, at Foresterhill, Aberdeen, to Margaret, wife of Dr. John S. Caldwell, of Dunleigh, Aberlour, Banffshire, a daughter

Harris.—On July 14, 1952, to Juliette, wife of Dr. L. H. Harris, of 6, Lambolle Road, London, N.W., a brother for Adrian.

Herbert-Burns.—On July 6, 1952, at 18, Edward Road, Dorchester, to Joan (formerly Jolly), and Dr. Jack Herbert-Burns, a sister for Hugh, Susan, and Rosanne.

MARRIAGES

Sterland—Helmer.—On July 12, 1952, at Louth, Lincs, Frank Kenrick Sterland, A.M.I.C.E., to Mary Helmer, M.B., B.S.

DEATHS

Baird.—On July 18, 1952, at a London nursing-home, Stephen Young Baird, M.B., Ch.B., of Assam India, formerly of Glasgow.

Ballantyne.—On July 16, 1952 Simon Alexander Ballantyne, M.B., F.R.C.S.Ed., of 39, Belvedere Road, Coventry, aged 74.

Camac.—On July 19, 1952, James Camac, M.B., B.Ch., of Church Gresley, near Burton-on-Trent, Derbyshire, aged 55.

Chisholm.—On July 21, 1952, at 34, The Broadway, Withington, Manchester, Lancs, Catherine Chisholm, C.B.E., M.D., F.R.C.P.

Herbert.—On July 18, 1952, at Uplands, Coach Road, Wollaton, Nottingham, George Heywood Herbert, M.R.C.S., L.R.C.P., late of Uttoxeter, Staffs.

Howard.—On July 13, 1952, at 3, Stanley Road, Leicester, Thomas Howard, M.B., B.Ch., J.P., formerly of Portland, Dorset, aged 84.

Longridge.—On July 13, 1952, at his home, Upmead, Kersbrook, Bud'eigh Salterton, Devon, Charles John Nepean Longridge, M.D., F.R.C.S., M.R.C.P.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Pets in Bed

Q.—*Some of my patients share their beds with their dogs and sleep with the animals almost face to face. The animals also receive their food from the same plates as the family does. Is there any risk to the health of the owner?*

A.—There are certain conditions affecting dogs and cats which are communicable to man and are therefore a source of danger. Tuberculosis is by no means uncommon in the dog, and about 70% of the recorded cases are due to the human type. The pulmonary lesions are particularly liable to break down, with the formation of "vomicae": the organisms may then be shed into the bronchi and be discharged in the sputum. A second bacterial disease which is potentially dangerous is leptospirosis: young dogs are susceptible to *L. icterohaemorrhagiae* and *L. canicola*—both types are probably voided in the urine. Amongst fungous diseases, some dermatomycoses may be transmitted to man by contact with infected dogs and cats, especially *Microsporum* infection from the cat.

Certain animal parasites which infest dogs may also constitute a danger to human beings. The most important is a small tapeworm of dogs, *Echinococcus granulosus*, whose larval stage (hydatid cyst) can develop in man and other animals. Man acquires the infection through the ingestion of the ova of the tapeworm, usually by hands contaminated as a result of fondling dogs whose coats have become soiled with infected faeces. In some of the great pastoral countries the incidence of this tapeworm in dogs and of hydatid disease in man is relatively high, but fortunately in Britain infestation of dogs with *Echinococcus granulosus* is probably very low, and cases of hydatid disease in man are infrequent. Other animal parasites communicable to man and of lesser importance include *Dipylidium caninum*, a common tapeworm of the dog and cat which utilizes fleas and lice as intermediate hosts for the larval stage. Man (usually children) may become infected with the adult stage of this tapeworm by the accidental ingestion of fleas or lice infected with the larval stage. Amongst ectoparasites which are transmissible from dogs to man, *Sarcoptes scabiei* var. *canis* has occasionally been responsible for a mild form of scabies in the human host.

The foregoing remarks are not intended to raise any unnecessary scare, but the facts do indicate that over-familiarity with domestic pets is to be deprecated.

Inoculations for Travellers

Q.—*What inoculations are recommended for passengers and crew in a ship going to South America via Madeira?*

A.—The essential inoculations for passengers and crew in a ship going to South America via Madeira are smallpox and yellow fever vaccination. It would also be desirable to give a course of T.A.B. inoculations against enteric fever. *Information on this matter can always be obtained from the consulates of the countries to which the traveller is going.* The certificates of vaccination against smallpox and yellow fever must be on the international form (obtainable from travel agencies), and the doctor's signature on any certificate should be endorsed by the local medical officer of health or other responsible body. There are approved centres in this country, indicated on the "Notes to Travellers" issued by the Passport Office, where yellow fever vaccination is done free of charge.

When vaccination against both smallpox and yellow fever has to be done the Ministry of Health recommends that:

1. Whenever possible yellow fever inoculation should precede primary vaccination against smallpox.

2. There should be an interval of at least four days between yellow fever inoculation (when given first) and primary vaccination against smallpox (when given subsequently).

3. If primary vaccination against smallpox is done first, there should be an interval of 21 days from the date of the vaccination before the yellow fever inoculation is given.

4. Where there is evidence of previous successful vaccination against smallpox, yellow fever immunization and re-vaccination against smallpox may be carried out at the same session, but, if time permits, yellow fever immunization should always precede re-vaccination by at least four days.

Poliomyelitis in Medical and Nursing Staff

Q.—*In a large ward with acute poliomyelitis cases (first 20 days of illness) what are the risks of infection for nurses and doctors and their families? What precautions are worthwhile besides hand-washing?*

A.—The risk of contracting paralytic poliomyelitis by nurses and doctors in intimate contact with cases in an *infectious diseases hospital* must be very small indeed. In the writer's experience, covering a number of years with hundreds of cases treated in the acute stage of the disease, not a single instance of clinical infection of staff has occurred. Nor has a case occurred where a medical-practitioner or nurse contact could be suspected of having conveyed infection to relatives or friends. There appears to be no evidence that families of staff of such hospitals are at greater risk than others. From the Ministry of Health statistics, however, it seems that there is some risk of infection in *general hospitals*, involving both staff and patients; there is also support for the belief in the comparative safety of the work in the infectious diseases hospitals.

The lack of authoritative evidence about the mode of spread of poliomyelitis makes it impossible to dogmatize about prophylaxis. In the light of infectious diseases hospital experience, in contrast with that of the general hospital, it would be reasonable to assume that the practice of bed isolation, aseptic technique, and adequate spacing with reasonably free ventilation may be the decisive factor. Hand-washing is most desirable. Masks, if intelligently used, could possibly help where there is contact with cases in the first 10 days of disease, but there is no evidence that danger exists when they are not used.

Infantile Eczema

Q.—*A boy aged 2 years has suffered from infantile eczema for the last 12 months, and the condition has not responded to treatment in hospital. Are there any recent advances in the treatment of this condition? What are the broad principles upon which treatment should be conducted?*

A.—There have been no recent advances in treatment for infantile eczema. Authorities differ in their approach to the problem. It is reasonable to accept that the subject of infantile eczema is a highly sensitive child from both the physiological and psychological point of view, his sensitivity being perhaps enhanced because of his inheritance and by the circumstances of his environment. In addition to such general sensitivity some authorities would suggest that there is also specific sensitivity of an allergic character and particularly to foodstuffs. The writer does not subscribe to this view. Such infants awakening to human existence are particularly susceptible to emotional influences, and a condition of eczema naturally arouses anxiety and alarm in the mother and often in the household. The intelligent infant may turn this position to its advantage to gain its desired ends. The experience of teething frequently determines the onset of eczema in these infants, and waxing and waning of the affection may persist through this period. However, habit may seriously enter into the picture and create further difficulties. The sensitive skin itself is readily provoked by exposure, change of temperature, rough clothes, soap and water, and other external factors.

The broad principles of treatment follow understanding of these aspects of the problem. The general management of the child is of first importance: handling must be firm but tactful, and discipline and routine must be maintained. Anxiety and emotional unrest must be countered or removed. Sedatives must be used to reduce the sensitivity of the child—to raise the threshold of reaction and relieve itching and ensure rest. Bromides, chloral, or phenobarbitone are the most desirable for the purpose, and they must be continued as long as the child is in the eczematous phase. Lassar's paste, with 2% crude tar, is usually the most effective local application; it should not be cleaned off the skin unnecessarily. Restraint must be employed with discretion. There is usually no objection to the use of a cardboard cuff over the elbow to limit the range of movement.

Alopecia Areata

Q.—*Have there been any recent advances in the treatment of alopecia areata? I have a patient, a young unmarried girl, in apparent good health, who has developed two bald patches in the last month. What is the prognosis?*

A.—The answer to the first question is no. In broad terms alopecia is a symptom consequent upon local or general injury. Recovery is the rule when the effects of the injury have passed. Some individuals and some families are much more susceptible to this pattern of reaction than others, and this is a matter to be taken into consideration in making a prognosis. The outlook in a first attack in a healthy adult without obvious provocative cause and with a negative family history is likely to be good. In most patients the symptom appears to be dependent upon emotional factors.

NOTES AND COMMENTS

Recurrent Iritis.—Dr. B. E. W. MACE (London) writes: With reference to the question on "Recurrent Iritis" ("Any Questions?" June 21, p. 1366), another possible cause of iritis of the type described is ankylosing spondylitis, and it would be worth while obtaining an *x*-ray picture of the sacro-iliac joints. There is now adequate evidence of an association between these two conditions, and a series of cases, in which iritis was the presenting sign, has recently been published (Birkbeck *et al.*, *Lancet*, 1951, 2, 802).

Corrections

In the second part of the Refresher Course article by Professor B. G. Maegraith on "Clinical Effects of Exposure to Heat and Sunlight" there is a prescription for a "sun-tan" oil (June 28, p. 1404). The first constituent of the oil should be menthyl salicylate, *not* methyl salicylate.

In the report (*Supplement*, July 19, p. 54) of Mr. J. R. Nicholson-Lailey's speech to the Representative Body, when he moved the approval of the Reports of Council under "Science," the word "free" was omitted from the penultimate sentence, which should have read: "It was a matter of regret that the honoraria to lecturers had had to be discontinued and also the free postal service from the library."

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